Industrial Finishing

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Devoted to the Finishing of Industrial Products
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GLIDDEN

Greetings
1927

Laca

THE GLIDDEN COMPANY
National Headquarters
CLEVELAND

A Happy New Year

To The Industry

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Industrial Finishing

An Independent Publication Devoted To The Finishing of Industrial Products

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With the Editor

MORE BUSINESS based on the merits and appearance of the product, plus a real guarantee and service back of it! This is our idea of a slogan for industry during the year of 1927. For the most part manufacturers, today, have these facts to face:

1—Ample volume in productive capacity.
2—Plenty of competition.
3—Close selling prices.
4—A continuous potential demand.
5—Discriminating buyers.

The time is at hand to strive to put more value into manufactured products—more durability, convenience and attractiveness—and to supplement value with service. Then move the goods by means of carefully-directed advertising and thorough sales methods. Study the potential field, and use logical and sensible avenues for reaching possible buyers and users.

Put the factory on a basis of economical production by utilizing existing space to better advantage, and by replacing old equipment and makeshift devices with modern, labor-saving machinery and apparatus. Reduce wastage, spoilage and disappointments by using only materials and supplies of dependable quality, and by placing every phase of the production process in the charge of trustworthy men who get things done promptly, efficiently and economically.

Keep in mind, too, that INDUSTRIAL FINISHING is not only a source of much practical information and many new ideas, but also the logical, convenient and economical medium of contact between manufacturers and users of all kinds of industrial finishing materials, equipment and supplies.

W. H. Rohr

Managing Editor

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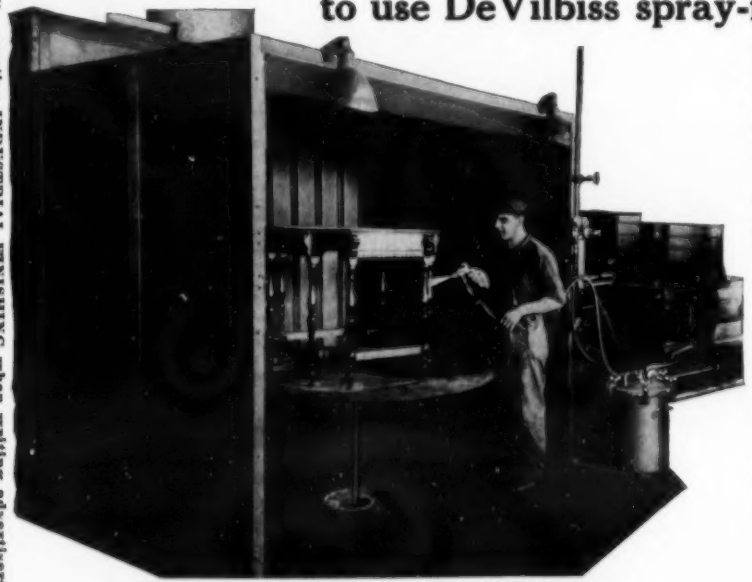

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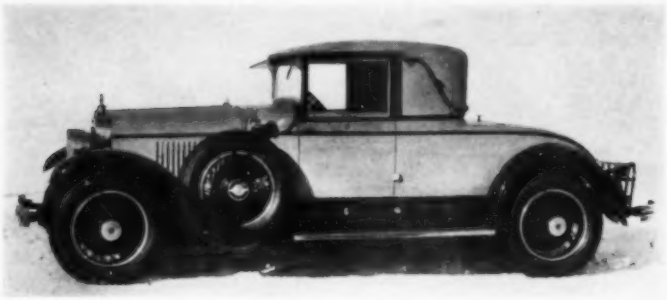

Cadillac coupe by Fleetwood.

Fine Car Finishes at Show

Notes on designs, finishes and colors of the world's finest luxury cars, as observed at the twenty-second annual automobile salon last month in New York City

By George D. Hirst, Inc.

"EVERYTHING to the Queen's taste," describes the Automobile Salon at the Commodore Hotel, in New York, Nov. 28th to Dec. 4th. Color was the outstanding feature of the many beautiful "master" cars shown. The manufacturers of luxury cars are at last supplementing the appeal of mechanical excellence with the appeal of light, gay colors. Two-tone finishes are the newest and most approved styles for the show car. The high-priced car has reached the point where silent motors, durability and kindred selling points must be clothed in a beautiful covering.

More Attention to Finishes

Finishes have evidently been receiving a great deal of attention from those who have the management of sales under their supervision. The wide-spread use of two-tone, rather than solid color finishes is due, among other things, to the recognized influence of feminine buying power—the new influence which is being felt by many trades. More and more color is the edict from Paris; more and more color is coming into the automobile industry.

The effective use of period design is acquired by intelligent use of color. The beauty of this period coachwork is largely enhanced by the masterful application of authentic color. Paint and varnish play a greater part in making motor cars more desirable than ever before in the history of body designing.

No matter how beautiful a design may be, nor how excellent a motor, if a car is not pleasing to the eye it is not desirable as a luxurious car; this seems to be the line of reasoning followed by the fair purchasers of aristocrats

of the highway. The cars shown at the Salon, embody every type that could be desired; no two are alike, in finish or design.

One of the outstanding features of the show was the introduction, by the Lincoln Motor Co. of period designs in body construction. Thirteen periods are represented, beginning with the Oriental—the most ancient. Succeeding eras of artistic and architectural development are depicted in chronological order. Several very striking designs are among these period cars.

Cars in Colors

The Louis XIV, a French brougham by Locke, which was designed to show the splendid grandeur of that age, is finished with varnish in two colors; upper panels and moldings are in black; the lower panels, window reveals and wheels are in maintenon blue. The rear body panels are done in a wicker effect, Chateau cream buff in color. The regal splendour of the exterior is matched by opulence in the interior, done in French gray broadcloth.

Another striking design was a Cadillac Cabriolet by Holbrook, which has a two-tone varnish finish. The upper panels, fenders and moldings are done in sagebrush green, and the lower panels in moss gray with ivory stripings.

A very interesting car—the Isotta-Fraschini two-passenger roadster—was designed for the personal use of Rudolph Valentino. It is finished with varnish, the upper panels and fenders being in moss gray; lower panels are in meteor gray with gold striping. The hood and cowl of polished aluminum make a very striking contrast.

Rolls-Royce was well represented and had many beautiful displays which must have been appreciated by the discriminating car buyer. A most alluring finish among Rolls-Royce cars was the Chatsworth model, a varnish job in black and cobalt blue, extra dark.

One of the prettiest of the light-colored machines was the Prince of Wales sedan, a Stutz model with varnish finish, upper panels battleship gray, lower panels navy gray and wheels and stripings in light red. In contrast to this was the Stutz Cab-

Packard cabriolet by Holbrook.

Interior of Lincoln Berline—one of the series of period cars suggestive of the Egyptian period. Body by Judkins.

riolet with an all-over finish of black, wheels and striping in light emerald green.

The Mercedes Co. showed a touring car which has a dull oil and pumice stone finish. Perhaps not a very striking finish for a luxury car, yet very durable and something different.

The Pierce-Arrow displays were nearly all in two-tone finish, a very pretty model being the six-passenger Town Brougham in black and leaf green.

One of the best looking Packard jobs was an all weather Town Car; a lacquer finish in medium maroon, with carmine wheels and striping.

The modern car, stream-line light color and greyhound build was effectually portrayed by the Modern Period Lincoln. Finished in lacquer, light palmetto green on upper panels, deep palmetto green on lower panels, orange striping and orange wheels—it showed the trend of modern finishes toward striking effects.

When one remembers that only a few years ago the majority of motor cars, both small and large, were finished in somber shades of blue, green and black, with a few shades of dark red, and then notices that nearly all the luxury cars are now finished in light two-tone colors, it can be seen that the influence of appearance is becoming more and more a thought to be remembered in car finishes. Seventy-six cars were shown at the Salon. Of these, it would be safe to say that 70 percent were finished otherwise than in dark colors. Some were painted in dark and light contrasting shades, while many used matching shades of light colors.

Beautiful Interiors

Interior work also showed a very decided trend to light colors, shades of tan and gray being the most popular. The William Wiese Co. introduced a beautiful motif for their upholstery; three of the most striking designs being an Italian renaissance needle-point medallion, a Louis XIV needle-point medallion, and an 18th century French needle-point medallion. These are all made with broadlace trimmings to match, introducing the last word in luxurious appearance and at the same time a durable fabric.

Carrossiers of several nations introduced elegance in custom coachwork that has never been excelled. Fifteen of America's custom coach builders, whose reputation is a byword for master workmanship, had special exhibits.

There were three outstanding features of this show; first, light colors are more and more becoming desirable as a finish for the luxury car; second, new motifs in design and finish are giving a new life to motor car construction; third, lacquers are beginning to take their place as finishes for the high-priced car.

Finish Indicates Quality of Furniture

Foreman Finisher points out that the finish on furniture plays an important part in attracting customers' attention and exerting a compelling sales appeal; also he tells what is necessary to produce a satisfactory finish

By J. H. Haines

OFTEN those closest to things of great value have less realization of their importance than those farther away; so it is with finishes. The work of the finishing department often grows monotonous and becomes routine to the production organization.

To bring out the beauty of a piece of mahogany, or walnut burl veneer; to achieve true art in enameling and lacquering; to secure the high-lighted and shaded effects in vogue today and to impart the grace and charm of a good finish—these accomplishments, to the workmen, are all in a day's work. To observers on the outside, however, they represent performance of high rank and skill.

The value of many things often can be measured by what they lack. Take, for example, one of the finest-designed and best constructed pieces of furniture; what is the measure of its appeal without the finish in comparison with the same piece well finished? Recently there appeared at a furniture exposition, two pieces of furniture identical in design, construction and selection of wood. One piece was in the white and the other was beautifully finished. Naturally, it was the finished article that attracted the buyers' attention. They wanted to see it as it would appear on their floors.

Finish Decides Sales

The finish is always the deciding factor in the sale of an article. Firms that are abreast of the times and giving their best attention to their finishes, these are the ones who are attracting the buyers and making sales. It is a known fact that of the total cost of an article in furniture, the cost of the finishing material used is by far the least, yet I believe any manufacturer will readily admit that the majority of complaints he receives concern the finish. It is the item on which he spends the least money that causes him the greatest trouble with his dealers.

Despite the comparatively small percentage of total cost that so many manufacturers spend on their finishing materials, the finish is becoming more and more the factor which exercises the greatest influence on sales. It is also true that the public is gradually but surely becoming better educated concerning furniture finishes, and is beginning to realize what a satisfactory finish should be.

Educated Customers

The time is not far away when the average customer will thoroughly examine the article he intends to purchase to determine whether or not it will scratch or whiten. He will want to test in

a general way the durability of the finish. Any dealer in furniture will tell you that customers are asking more about the finish today than ever before. The finish can no longer be the weak link.

Every Operation Important

For a lasting and durable finish, every operation, including staining, filling and on through to the final polishing, must be given the most careful attention.

A small dresser with modest decoration.

If the wood is to be stained, give the stain ample time to thoroughly dry before proceeding farther. If a water stain is employed, use a "size" or wash-coat over the stain, and sand to a smooth surface before filling.

It is in the filling department that the greatest caution must be taken, for if the wood is not properly filled, or if the filler is not given time to thoroughly dry, an imperfect finish will be the result. It is the coating-over of filler which is not thoroughly dry, that causes the majority of complaints against the finish. The filler is largely responsible for holding up the finish, therefore great care should be given to selecting a good grade of filler.

The various individual coats put on over the filler, whether they be lacquer or varnish, should be allowed ample time to thoroughly dry after each application, and be sure that final coat is dry before attempting to rub the surface.

Use Varnish Carefully

In the spraying of the varnish coats, good results cannot be had if the varnish is applied in a damp room, or in a room where the air is impure. In cold or damp weather, see that the varnish has the chill taken off it; for this purpose some firms use an ordinary one-hole electric hot plate about 12-in. square. The hot plate is placed on top of the spray booth and a 5-gal. can of the spraying liquid is set on top of the plate. Current for the heater is supplied through an ordinary drop cord from an electric light socket.

Some varnishes dry comparatively fast on the surface and often fool the shrewdest expert in their outward appearance, therefore it is important to observe drying schedules to the dot and not depend upon the looks of the job.

As a gloss producer and flow agent, in the make-up of modern lacquer, ethyl lactate has hardly an equal.

Agricultural Implement Painting

Revealing interesting notes on various paint materials and methods used in the painting, striping and finishing of agricultural implements; also how to mix paints and striping colors

By A. J. Patterson

IN FINISHING agricultural implements, whereon the work must be primed one day, second-coated the next day, and striped and varnished the third day, the primer must be made to dry quickly; and the second coat must not contain so much oil that it will absorb the final coat of varnish and cause lack of luster due to the sinking in of the gloss finish.

Forced Drying

In some plants this feature is prevented and the entire process of finishing is greatly expedited by a forced-drying system—similar to methods followed in automobile plants whereby the product, after being coated, is slowly conveyed through heated tunnels for mild baking and hardening of the undercoat and finish.

Where air drying is still the custom, and to overcome the possible difficulty mentioned, the primer is generally ground in a mixture of boiled oil and japan, and the paste paint is thinned with benzine.

To insure a satisfactory second coat, so the final coat of varnish will not sink in and lose its luster, part of the oil in the second-coat paint should be replaced with varnish; or rather if the second coat of paint has been ground in boiled oil and a small quantity of japan, then instead of thinning the paste with oil and benzine, as is usually done, the paste should be thinned with benzine after first adding a quantity of varnish. Varnish used for this purpose must be such as will stand the thinning with benzine without "splitting", that is going to pieces, or the gum being "bounced out" by an excessive reduction.

Dipping Paints

Dipping paints frequently "blanket" over in the tank, on standing for several days, meaning that a thick skin forms on the surface of the paint. In some cases this skin, when broken, settles to the bottom of the tank or becomes a layer on top of the settled pigment of the paint.

This fault is due to an excess of japan in the presence of varnish, and if the skin sinks in the paint, it is quite indicative that a wood-oil varnish is present. Therefore, second coat paints containing varnish should not carry too much drier.

Thinning Paints

When thinning paste colors with oil, turpentine, varnish, etc., the following rules should apply:

In "breaking up" any stiff, paste-like, white lead in oil, do not add all of the oil at once. Add it in small portions at first and stir until a semi-paste is obtained, after which it will take more oil and thinners freely.

In the case of agricultural-implement paste paints, in which oil, japan, varnish, and benzine

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are to be used, first add the varnish and mix thoroughly, then add the benzine in small portions and stir until a perfect mixture is obtained, after which the oil and japan may be incorporated without trouble. Usually it is the custom to add the benzine last, but it is almost impossible to get a perfect mixture due to the thinner "hugging" the sides of the tank.

Striping Colors

There is also a knack in thinning striping colors ground in japan, and as the master painter well knows, some of the blacks are most difficult to break up with turpentine. If the paste color be well beaten up before any thinner is added, then the turps added little by little at first until a semi-liquid consistency is obtained, there should be no difficulty experienced.

Sometimes it is desired to hold back the setting and flatting of coach (japan) colors by adding a small quantity of raw linseed oil. In this event, first reduce with turpentine as explained, stirring continually to avoid lumps, until the mixture is thin enough to be easily laid on with a camel's hair brush; then add a few drops of oil.

Spraying from a regular pressure tank is the safer way.

Under no circumstances should both oil and varnish be put into the same cup of color—to avoid very vexing "deviltries" most likely to follow. An instance of probable ill-effect is that the binder of varnish will unite with the japan and form a close surface that is repellent to varnish applied over it.

On the other hand, a few drops of raw linseed oil to the pint cup of thinned color cannot do harm, and generally it may be recommended. The color will present the same dead flat surface to the coat of rubbing varnish, insuring the adhesion of the latter to the color coat, and minimizing any tendency to chip or scale when the job has been put to the wear of active use on the streets. A job not presenting a dead flat color surface should be well rubbed over with a soft sponge and cold water, and then varnished when thoroughly dry.

Stripping colors thinned with benzine do not flow as freely under the brush as when thinned with turps, but, should it be desired to cause the benzine to work more freely, dissolve one ounce of camphor gum in a gallon of benzine. However, turpentine is the one proper thinner adaptable to japan or coach colors, and the only one advised.

Lacquer Rubbing and Patching

After the lacquer has been sprayed and dried, it is ready for the rubbing and patching. The time which should elapse between successive coats of lacquer depends largely on the type of lacquer and the kind of work being finished. Usually the best results are obtained by applying only one coat of lacquer each day and rub-

PROGRESSIVE furniture manufacturers demand a perfectly balanced wood lacquer that will conform to all production schedules to secure any wood finishing effect. A lacquer that can be used directly over stain or filler without bleeding or softening the undercoats, and which is free from the danger of blushing.

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bing after 24 hours. This method helps to prevent shrinkage.

Generally speaking, it is possible to spray coats of the average type of lacquer about four to eight hours apart. Some lacquers give the best condition for rubbing after having stood for about 40 hours. Others should be rubbed after standing over night.

It will need some experimenting under the conditions in each particular plant, as well as the recommendation of the man who is offering the material to determine the best schedule for coating and rubbing. Most furniture manufacturers prefer an oil for rubbing, since it saves one operation. The author prefers water, or if this is not possible, then a debloomed oil.

The grayish cast which comes on the lacquer surface after it has been oil-rubbed may come from two causes: First, the lacquer may have been rubbed too quickly or too severely, and some of the pumice which was used may have been ground into the surface; then, as the rubbing vehicle dries out, the pumice comes back to its original color, producing a grayish, spotty cast over the surface of the work.

To overcome this condition, a fine pumice should be used, allowing the work to dry for two days before rubbing. Second, the grayish cast may also be due to the neglect of the finisher to thoroughly clean off the oil from the surface. This oil penetrates the lacquer finish and since oil is not a solvent for pyroxylin, it precipitates the cotton and produces our familiar gray.

Those places which have been rubbed through should not be touched up with alcohol or shellac, as would usually be done with varnish, but a lacquer toner should be prepared. This is made in the same manner and applied in the same way as colored shellac.

It will be noted throughout the entire consideration of lacquer, that this relation of solvent to pyroxylin stands out as the one thing to be remembered. Lacquer has been so widely advertised as a quick finish that there is a grave possibility it will be abused in this respect and that there will be a tendency to rush it too fast.

From a paper contributed by Walter S. Edgar of Flood & Conklin Co., at the Annual Meeting of the A. S. M. E. in New York, Dec., 1926.

Tests and actual service have proved that a lacquer finish will last for years, but methods are being given much study and research towards speeding them up even greater improvement.

New Sander Book

The U. S. Sand Paper Co. of Williamsport, Pa., has started, with Nov. 1926 issue, publication of a monthly pamphlet with which the company hopes to call the attention of the trade to "the latest improvements in sandpaper, the uses made of it, and methods of buying, stocking and selling it—to some extent." Pages in "The Sander" are brightened with humor and wit, sandwiched in with some interesting information and valuable suggestions. It is sent free to all who are interested in sanding.

Pratt & Lambert Sales Conferences

The semi-annual Sales Meetings of Pratt & Lambert—Inc., were held the first part of January. The Western Sales Division met Jan. 3rd and 4th at the Blackstone Hotel, Chicago; the Eastern Sales Division at the Hotel Astor, New York City, on Jan. 7th and 8th; and the Central, Canadian and Industrial Sales Divisions convene on January 10th and 11th at the Hotel Statler, Buffalo. Mr. A. D. Graves, President, will be in charge at the various meetings.

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Wood Industries Engineer points out important features in the arrangement, design, and operation of dipping vats, drain boards and transfer cars for service in the finishing of small wood turnings and handles

By Frank H. McLain

THIS article refers to the finishing of wood turnings produced on the ordinary hand and automatic wood-turning lathes, such as the Wilder and Goodspeed lathes.

The vats should correspond in size to the fixture boards, allowing sufficient additional space on the ends and sides to permit the boards to be easily submerged by hand. A convenient size for the fixture boards is 3 to 4-in. wide (or better still to have both sizes) and 30-in. long, which is about right to handle to best advantage. Attached to the boards will be a number of pins or springs varying according to the work being handled.

Some goods can be handled on straight pins, such as finish nails well pointed and driven through the boards. A good spring pin is made from flat spring steel about ⅛ x ⅜-in., or other sizes depending on the work. These springs are cut about 6-in. long and doubled up close by a wire bending device. They are driven through small holes drilled through the boards; then the ends are spread apart.

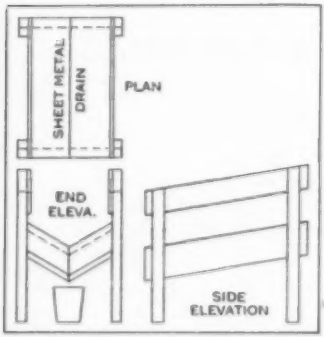

Fig. 1—Plan and elevations of typical drain board.

Size of Vats

This would make the vat 38 or 40-in. long by 6 to 8-in. wide. The depth should be sufficient to take the work, plus 3 or 4-in. It is desirable that these vats set on benches of the proper height for the dipper to work to best advantage. See Fig. 1. There should be more than one size of vats. For the jets and varnish, a larger size can be used to advantage so as to hold more material at one mixing, but for colored work, or for any material which is not being used constantly, the vats should be as small as possible to be easily handled, as the material should be put back into closed containers when the men are through with it.

The drain boards can be placed in front of the operator, over and back of the vats, but this arrangement does not give much capacity. A better way is to place the drain board or rack to the right or left of the operator,

"No one, so far as I know, was ever kept from using a Murphy Finish because it was not good enough for the job. Some have, no doubt, with a proper sense of proportion, sometimes realized that a job was not good enough for a Murphy Finish."

GIVES THE QUALITIES OF LACQUER
to ordinary shellac

Murphy Waterproof Mixing Lacquer is used to mix with shellac to make it waterproof, tough and adherent. You add one part of Murphy Waterproof Mixing Lacquer to three or four parts of shellac and apply it as you would ordinary shellac. The results obtained by this mixture are in every respect superior to those secured by using straight shellac. We know of no argument against its universal use.

The mixture costs less than straight shellac. It has better flowing qualities and therefore sprays better. It dries as quickly; it has greatly increased durability; it is absolutely waterproof; it has the same fullness and film thickness; it may be brushed on as well as sprayed; it retains the easy sanding quality of shellac; it seals as well as shellac; and it has increased anchoring qualities due to its greater penetration.

With all of these advantages, which may be secured without increased cost, why not use this improved material? Write us for a price list and the name of your nearest distributor.

Murphy
WATERPROOF MIXING Lacquer

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within easy reach, and at right angles to the vat, or for large capacity at both sides of the operator.

The car for bringing the work to the dipper is generally placed directly back of him when he

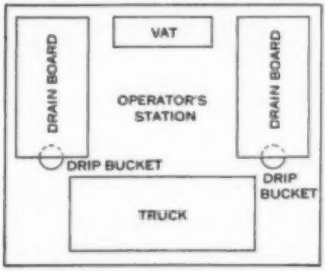


Fig. 2—Floor plan arrangement of one unit consisting of a dipping vat, two drain boards with drip buckets, and truck from which material is taken.

faces the v... A pail can be placed at the i... nd of drain boards to catch the drips. Reference to the outline plan view of this arrangement as shown in Fig. 2, will make clear the above described arrangement.

This constitutes one unit, but it can be duplicated as many times as necessary, according to the number of dippers and the amount and variety of work and finishes.

Transferring Equipment

Next in importance is the conveying equipment for moving the work from the "sticking" room (or to and from the ovens) to the vats with the least effort and loss of time. Oven doors must be kept closed all that is possible to avoid loss of heat, which also means loss of time in baking.

A very serviceable conveyor or car is made up of light angle irons for the frame and side rods. It can be about 6-ft. long and 5 to 6-ft. high, with fixed wheels or casters under one end and swivel casters at the other end. Some of the large bakery supply manufacturers make cars that are well adapted to this purpose.

The width of these cars (between side rods) should not be too great, because the fixture boards should overhang at each end a few inches, as this makes it easier for the dipper to remove and replace the boards without dragging them over the rods. The reason for this is the fact that more or less drippings will collect and bake onto the cars, and when removing the boards this baked enamel will crumble off and fall onto the newly dipped pieces, in small specks. This will show in the finish of the articles when they are completed, in some cases causing rejection on high class work. The side rods on the car should be adjustable vertically to accommodate different length turnings.

It is the opinion of the writer that cars as above described will handle the work faster and place it more conveniently for the dip-

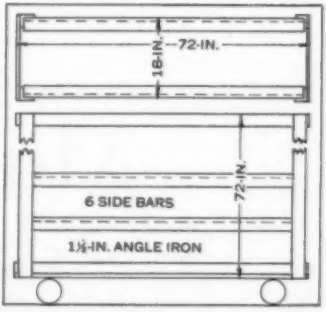


Fig. 3—Top and side views of truck or portable rack for transferring the dipped parts while they are confined temporarily in dipping fixtures.

The Unusual as Usual!

When you are up against a finishing problem that apparently offers no solution—when competition forces you to produce better finishes at a lower cost — make one more effort — try Lacquer No. 602-B. It is an unusual lacquer—producing unusual results. Only by actually checking results can you tell how unusual it is. Send trial order today—and be convinced.

"No Tampering with Quality"

The

ROCKFORD VARNISH

Company

ROCKFORD, ILL.

per, with less loss of heat, than any system of movable conveyor that has as yet been devised for this class of work. The use of these cars or trucks will not require any more help, that is, attendants for the dippers, than a conveyor system.

Note by Editor: Mr. McLain promises that, "ovens and heat for this particular type of goods will be taken up later."

Finishing Hand Saw Handles

Handles for hand saws were giving one factory executive cause for considerable worry. Carpenters have learned to admire and ask for saws with handles in which the full beauty of the wood shows through, but little do they know of the troubles that this nationally-known manufacturer had with the finish before the problem was conquered.

These handles are now sprayed and they come through just as desired. They are strung on rods extending out from a central shaft which revolves slowly. With the handles thus presented it is possible to put a thin, even coat of lacquer all over them.

The older and less satisfactory method was to revolve them as at present, but the application of finish was different. The handles were dipped in an open tank. The head of the department complained to the concern that furnished the lacquer; he declared he could not get uniform results; one day's work would harden well, but next day the coating might stay sticky over the week end and show a decidedly uneven thickness on the surface.

Before any major change was made in the plant's method, an analysis and demonstration had to be made to show, (1) that atmospheric conditions affected the liquid in the tank as well as the rate of drying, (2) that the operator did not keep his lacquer at a constant consistency, etc.

Probably he went out to lunch leaving the container uncovered, and when he came back all he did to the lacquer was to stir it a little. It may have been all right at seven o'clock but gradually it became thicker, and this thickness was unnoticed. Neglect at noon didn't help it any, and by night it was way off. Uniform results were therefore impossible.

With the spray method, the supply of finishing material is not subject to room conditions and personal conditions. The finish is applied evenly. The new method makes handling of the product easier, because now the saw handles can be put on the drying mechanism while they are in the white or still uncoated.—D. H. Archer.

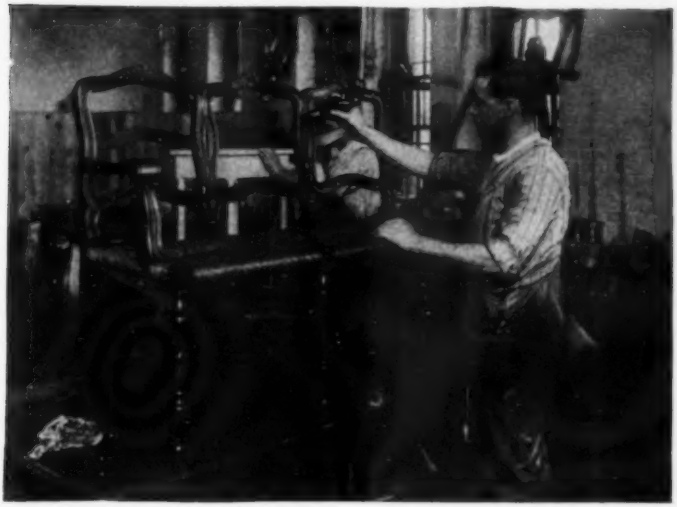
With 20,000,000 motor cars operating in the U. S., distinction must be attained by line and color.

Gilbert Spruance Co. Has New Lacquer Building

About two years ago The Gilbert Spruance Co. decided to manufacture lacquers. Being experts in the wood finishing field, their experience gave them a comprehensive knowledge of the requirements for such a finish.

However, it was not until 18 months of experimenting that they felt justified in placing on the market their Q-E-D Furniture Lacquers. These lacquers were developed by them in conjunction with a number of the largest furniture manufacturers who co-operated in carrying on the experiments.

A separate building has been erected for the exclusive manufacture of these lacquers under the supervision of Mr. Chapman, an acknowledged authority on this product.



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We are glad to offer suggestions as to the right varnish for specific finishes and effects. Send for detailed information and our technical department will give you the benefit of their experience.

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A bit of high-class
Artistry in Industry

Oriental Lacquering

Explaining the difference between ancient and modern lacquers, and revealing information on methods, materials, colors and designs employed today to impart the costliest Oriental decorative effects in modern production finishing

By R. G. Meade

ORIENTAL LACQUER, which in no way resembles our own, having been in use for some 2000 years, is obtained from the sap of the "lac" tree, then thinned for finishing purposes with camphor or perilla oil. Like varnish it dries by oxidation, but unlike varnish, moisture hastens its drying—in fact the Chinese artisan places the freshly coated piece in a damp cellar or humidity box overnight before putting on the next coat.

One of the Federal Radio Corporation's custom-built models—the "Mandarin" is an authentic Chinese Chippendale, designed by Harders.

The number of coats varies with the quality of the work, but 20 or 30 are not uncommon, each brushed on, dried as described and rubbed down—the final one being polished to a high luster. The resulting finish is extremely durable since first, it is applied over teak—one of the hardest known woods—and second, there is no known solvent for it, being alike impervious to varnish remover, alcohol and ordinary acids.

Oriental and Modern Lacquer

It was toward the close of the 17th century that Dutch traders first introduced Oriental lacquer to the western world in the shape of curiously decorated screens, boxes, chairs and small tables. Imitations of the so-called "Japan varnish" were soon forthcoming, consisting chiefly of shellac mixed with dry vermillion, chrome green, lemon yellow, bone black, etc.

The art of application was called "japanning," and it attained such wide popularity that a knowledge of the work was considered a necessary accomplishment by young ladies of fashion. During the 18th century it was applied to all or part of much

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White No. 1 Lacquer

COLORLESS

Clear and transparent, looks like a coat of celluloid on work. Can be polished.

FINISHING ROOM FAVORITES

No. 115 Pale Rubbing

The reliable quality varnish that held its own so many years in the face of keen competition.

SUN VARNISH CO.

Louisville, Ky.

Georgian cabinet work—in fact to whole dining rooms. Walls, woodwork and chairs were made to run riot with vermillion paint and gold or silver decorations.

In our more scientific age many attempts have been made to adopt the original Chinese lacquer to modern production methods, but without success. Further incentive is lacking due to the fact that our newly developed quick-drying, nitro-cellulose lacquers adequately serve all practical American purposes. Thus lacquer, to us, means a speed of application which makes it possible to place the finished product in the hands of the many at a more moderate price. To the oriental it means painstaking craftmanship on the part of the furniture maker; great wealth and rank on the part of the owner.

The Background Color

The first step in reproducing the oriental effect is the application of the body or background color which may be black (jet), red (an orange tone), green (lettuce or jade), brown (tan or chocolate) or yellow (champagne). For materials there is a choice of enamel undercoater, oil enamel, japan color and lacquer enamel, all of which may be used to the point where the oriental decorations are to be applied.

After these have been colored-in or bronzed and antique-glazed or stippled, one may apply flat or rubbing varnish, or flat or gloss lacquer as desired. It is also possible to follow the 18th century English method and build up with colored shellac coats, finishing with clear shellac over the decorations and rubbing, but this is not popular.

Where oil enamel is used three or four coats are customary. All of the undercoater is sanded down smooth, or the last of oil enamel (semi-gloss or gloss) is rubbed down. These materials may be brushed or sprayed. If the wood is so smooth as to require little filling, japan color may be sprayed, one coat being sufficient for all but very light shades. The oil-enamel system calls for a three to six-day schedule; the japan color, including clear varnish or lacquer finishing coat, one to three days.

Lacquer Enamel

If production is a consideration, a complete lacquer-enamel system is undoubtedly the most desirable. As with japan color, the wood should be close textured; it should be sanded to extra smoothness and primed with lacquer pigment first-coater, since lacquer enamels do not fill to the same extent as oil undercoating. One coat may be applied each four hours. Two to four coats are customary, with the last allowed to stand 24 hours prior to rubbing. If not desired to rub, flat lacquer may be applied as a finishing coat after decorating.

An even more uptodate background scheme for oriental decoration is embodied in the spidery pattern of the new crackle finish. Yellow crackle over brown lacquer-enamel undercoat, black over red, red or green over black, and black over gold or silver are appropriate combinations.

A typical example of this system calls for one coat lacquer-pigment first-coater, one coat black lacquer-enamel, one coat Chinese red crackle-lacquer, mottled all over with a sponge wet with a thin glaze. This glaze is made by adding of one pound each

!

The most unique and distinctive finish offered the furniture trade during the past year was BREVOKRAK—and 1927 will be another BREVOKRAK year.

Pioneered as a leatherette finish for radio horns, its variety of attractive combinations has brought it into use for many other articles such as, radio cabinets, furniture, fixtures, novelties, toys, etc. Ease of application—uniformity of pattern—combinations to suit your particular requirements, are outstanding qualities of BREVOKRAK.

Thorough-going demonstration made at your plant if desired.

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burnt umber and lampblack in japan, to one gallon of turpentine. The application of glaze is followed by a thin coat of gloss lacquer, decorations in gold, yellow, brown and black, and a top coat of flat lacquer.

Oriental Decorations

So much for the background, which in method is more or less the same as for any cabinet work in solid colors. It is in the decoration that we have that part of the Oriental idea which so strongly appeals to the Occidental eye, and in which the greatest skill is required. The subjects are familiar to us—dragons, peacocks, swans, ducks, deer and herons in the animal field; also pagodas, waves, reeds, islands, mountains, trees, landscapes and human figures in characteristic costumes.

In the manner of application, however, we differ; where the genuine Chinese or Japanese work is flat and very fine, ours is raised and somewhat coarser. Moreover, where we are satisfied with a single subject the oriental artisan, even on a large surface, fills it with myriad tiny pictures not necessarily related to one another.

In flat work we can resort to free-hand painting or even decalcomania transfers, but for the more popular raised figures the process is somewhat more complicated. First of all the design is prepared by tracing from or pricking through a piece of wall paper, a strip of chintz or a bit of Chinese embroidery. The tracing is transferred over a sheet of carbon paper on a light surface, or if dark, the pricked paper is used, dusting over tiny holes with powdered chalk or whiting. Once transferred to the background in one or the other manner, it is ready to be filled in free hand.

Raised Designs

However, instead of using ordinary oil colors, a stiff neutral colored-plastic material is applied. This is applied with a camel-hair artist's brush, layer upon layer; a fresh one is added as soon as the previous one is dry, until the desired thickness is reached.

While fresh and still plastic the paste may be worked to show details, but once it is dry nothing can be done in this respect without the risk of chipping off a piece of the material. It is therefore important on the one hand not to have the mixture set too quickly for convenient manipulation and, on the other hand, not be so soft and slow in hardening that it will run, mar or retard production. Good adhesion to the surface is also a primary essential.

There are various formulas for this relief mixture—most artists and decorators preferring formulas of their own. Popular in the general run of trade is so-called "iron filler," a ready-made material put out for the metal trades by practically all paint manufacturers. It is applied in paste form as it comes from the container. Others mix whiting, hot water and a little glue, or whiting and nonpareil japan, or whiting, pumice stone and shellac, or white lead, varnish and dryer.

Coloring the Decorations

The next step is the coloring of the relief figures. This is ordinarily done with gold burnishing bronze and bronzing liquid or gold or silver leaf. This may be slightly polychromed with thin glaze washes of black, brown, red, green or yellow japan color in turpentine, or with an artist's brush picked out in bright spots of

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Produces the highest type rubbed effect on both flat and turned surfaces.

Reduces rubbing costs from 50% to 75%

A generous trial sample sent on request.

The services of our finishing experts are at your disposal.

The Sargent-Gerke Co

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INDIANAPOLIS, IND.

these colors according to the subject—the leaves of a tree, petals of a flower, feathers of a bird, eyes, hair ornaments, etc.

Borders of striping, lattice or fret work are executed in harmonizing japan colors or silver or gold lining bronze and varnish bronzing liquid, the last over guide lines of yellow ochre or flake white in japan.

Applied over all of this and usually on the background as well, is an antique glaze coat of very thin burnt umber and Van Dyke brown and turpentine, to soften the colors which glow softly through.

Lacquer shading stains also may be used for this purpose. These may be applied with a spray, but shading on decorations must be done by hand for a real antique effect. The piece is then ready for the protective coats of flat lacquer, flat varnish or gloss varnish or shellac to be rubbed dull, although with lacquer enamel on the background these finishing coats are not always essential.

The Style of Furniture

Strictly speaking, Oriental lacquering and decoration should be confined to pieces of Chinese or Japanese design. In actual practice, however, pier book cases, consoles, desk cabinets, china cabinets, end tables and novelty furniture of the most modern types of design are equally favored. Sometimes the entire piece is painted or lacquered and the oriental decoration is applied only to a part. Again a portion only may be colored and decorated, the remainder being gold bronzed or finished in regular walnut stain and clear lacquer or varnish.

The radio cabinet illustrated in this article is an example of the latter; it is Chinese Chippendale in design. The upper section is lacquered and decorated with oriental decorations of the raised type; the interior is finished and decorated to match.

The brass ornamental hinges are rubbed dull and the center half-round moulding is painted to match the panel background color, and antique glazed. The lower portion is walnut with burl centers framed with paint striping. Hand sawed aprons, overlayed with blister-maple, fretted-tracery, join typical square, grooved Chinese legs. The whole is delicately spray-shaded and highlighted.

Jones-Dabney Salesmen Convene

The Jones-Dabney Varnish Co., Louisville, had its sales force of fifteen men in from Detroit, Grand Rapids, Chicago, Evansville, High Point, N. C., Milwaukee, Dayton and Philadelphia, for a three-day sales convention on December 15 to 17. There was a dinner at the Brown Hotel on December 16.

There was a factory demonstration of standard products and new ones developed during the year for the auto, furniture, paint grinder and other industrial consumers. W. C. Dabney and various department managers, and all the salesmen talked. S. C. Robbins, of the Detroit office, spoke on "Humanship" rather than Salesmanship in selling.

Glidden Co. Increases California Interests

The change of management on the Pacific coast recently announced by the Glidden Co., whereby Guy A. House became vice-president and general manager of the Glidden Co. of California, and H. R. Dinger, assistant general manager, is only incidental to the Glidden Co's. recent expansions on the coast.

During the past few months the company has acquired the whole interest in its own lithopone plant in Oakland, formerly an independent concern, and has also acquired large interests in the zinc mines in Shasta county, California, from which mine it will get its own supply of zinc.

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CLEAR SATIN LACQUER

for Finest Furniture Finish

Is non-blushing, tenacious, durable and most economical.
It does not discolor stains or colors used under it.
Needs no expert to apply it.
Gives a smooth, even finish.
Also furnished in gloss or egg shell.

For wood, metal or composition there is a **DHRLAK** clear, colored or white lacquer to meet your special requirements.

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"Gives Your Work a Bright Future"

DENNY, HILBORN & ROSENBACH, Inc.

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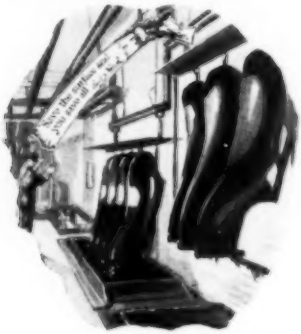

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Blacks are used to decorate and protect a great variety of products and surfaces. From a hairpin to a locomotive. From a button to a steamship. From a sash lock to a tank car. From a tack-head to an automobile. From a window screen to a sky-scraper. Blacks have the greatest number of uses and—as naturally follows—abuses. There must be a great variety of Blacks to accommodate every use—and *Lucas* has it.

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embrace a wide range of grades which are best suited to finish and protect the surfaces for which they are recommended. The research laboratories of *Lucas* can solve your paint and varnish problems. Write Dept. W-1.

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Paint and Varnish Makers Since 1849

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NEW YORK PITTSBURGH CHICAGO BOSTON OAKLAND

And Local Distributing Points

On a par with Original Finishing

Expert Automobile Refinishing

Describing the equipment, methods and specifications for cleaning and refinishing automobiles in a modern refinishing shop which has a capacity of 100 to 125 cars per week

By F. W. Worthington

REFINISHING automobiles is now a business of such importance and magnitude that larger and better equipped refinishing shops are coming into existence in towns and cities throughout the country. The larger and more progressive concerns in this business occupy space in buildings of modern type and have high-class finishing equipment. They employ skilled workmen, use high-grade materials and turn out first-class jobs on as nearly an economical production basis as the volume and variety of their work will permit.

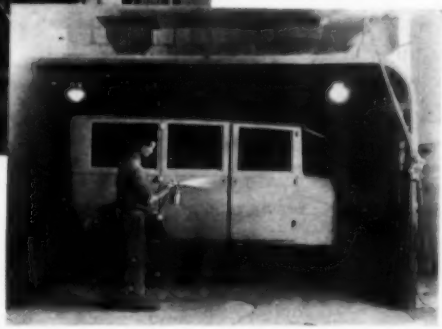
An interesting and instructive description of some of the equipment and methods in one of these modern refinishing plants appears in a 12-page booklet published and distributed by the company itself—the National Automobile Reconditioning Co., Inc. (Narco, Inc.), of North Tarrytown, N. Y. The following information from the booklet gives some idea of the thoroughness with which this work is done in a really modern establishment.

Modern Equipment

The buildings are modern and of steel and concrete construction—30,000 sq. ft. of floor space for painting operations, and equipped with all the facilities such as sprinkler system and Foamite system for fire protection; electricity for light, power,

Interior view on first floor of the shop.

Above: Spray-painting wheels in cone-shaped booth, the small end of which connects directly to the intake opening of an exhaust fan.



Below: A sedan body mounted on portable stand and placed in large booth where lacquer is applied with spray gun.

and heat; elevators and electric hoists for car handling; hot water and air blast heating systems; high and low pressure air for cleaning and operations of various painting equipment.

The equipment is of the most modern type and includes:

Steam cleaning devices for removal of grease and dirt from cars before beginning painting operations.

Spray painting equipment for application of paints and nitrocellulose materials.

Power ventilated booths for spray painting operations.

Special machines for sanding and rubbing operations.

Flow machines for application of paint and varnish materials.

Closed tunnel-type heated and power ventilated ovens for drying operations.

Conveyor ovens of "A" type, heated 500 deg. F., and power ventilated for baking black enamel on sheet metal parts.

Special flow equipment for application of black enamel.

Special spray machines for wheel and small parts painting by spray process.

Special built rooms, heated and power ventilated, for varnish drying and for ornamental painting, striping, lettering, and monograms, in either paint, gold leaf, or nitro-cellulose.

Particular emphasis is placed on the fact that all materials used are the very best obtainable for the purpose, and that any saving on material cost would be trivial. It is pointed out that the big cost item in repainting a car is labor, and that it costs just as much to apply cheap, inferior material as it does to apply the best.

Standard Specifications

The following part of the specifications is followed on all jobs, regardless of quality or cost or type of finish.

A FINE FINISH
DESERVES
THE FINEST EQUIPMENT

"MEL-ROCK"

AIR BRUSH SPRAY BOOTHS
ARE
"Strong on the Finish"
Est. 33 Years

MELLISH-HAYWARD CO.
211 West Austin Avenue
CHICAGO, ILL.

The car, when received, is carefully checked in and all defects noted and loose parts counted, removed from the car, and locked up to be replaced when work is completed.

Each car is thoroughly cleaned with high pressure steam and a solution to remove all dirt and grease, the chassis and under parts being given special attention.

All exposed chassis parts are spray-painted black.

All tops are cleaned and dressed black.

Leather trimming is cleaned and dressed black.

Inside woodwork is cleaned and polished, or given a varnish coat.

All instruments and instrument boards are cleaned and polished.

All nickel work is cleaned and polished. (Re-nickeling work is a separate extra charge.)

All tires are dressed tire black.

Bodies can be refinished with color and varnish, nitro-cellulose, or air dry enamel.

If the old paint has not perished, it can be cleaned and sanded smooth and new color and varnish applied over it.

Nitro-cellulose can only be applied over nitro-cellulose material. If other material has been used, it must be removed to the metal and a new nitro-cellulose foundation built up.

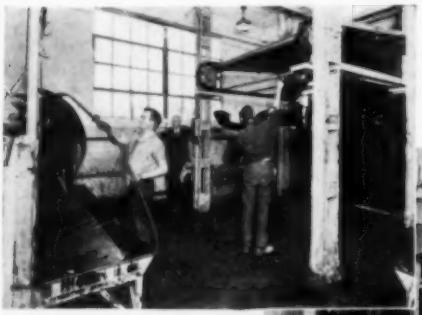
Hoods, radiator shells and lamps can be finished with same material as used on body, or can be removed from car, burned off, and refinished with high bake (450 deg. F.) black enamel.

Wheels can be refinished same as body, with either color varnish or nitro-cellulose material.

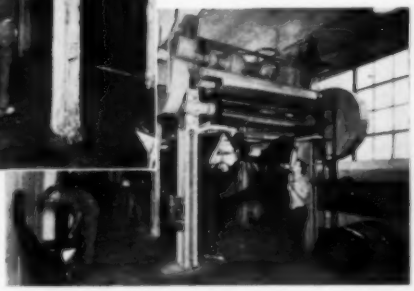
There are 21 standard colors of color varnish, and standard colors of nitro-cellulose, and standard colors of air enamel to select from. Any other color can be furnished at additional cost.

Ornamental work, striping and lettering can be done as selected by customer, from a number of standard patterns.

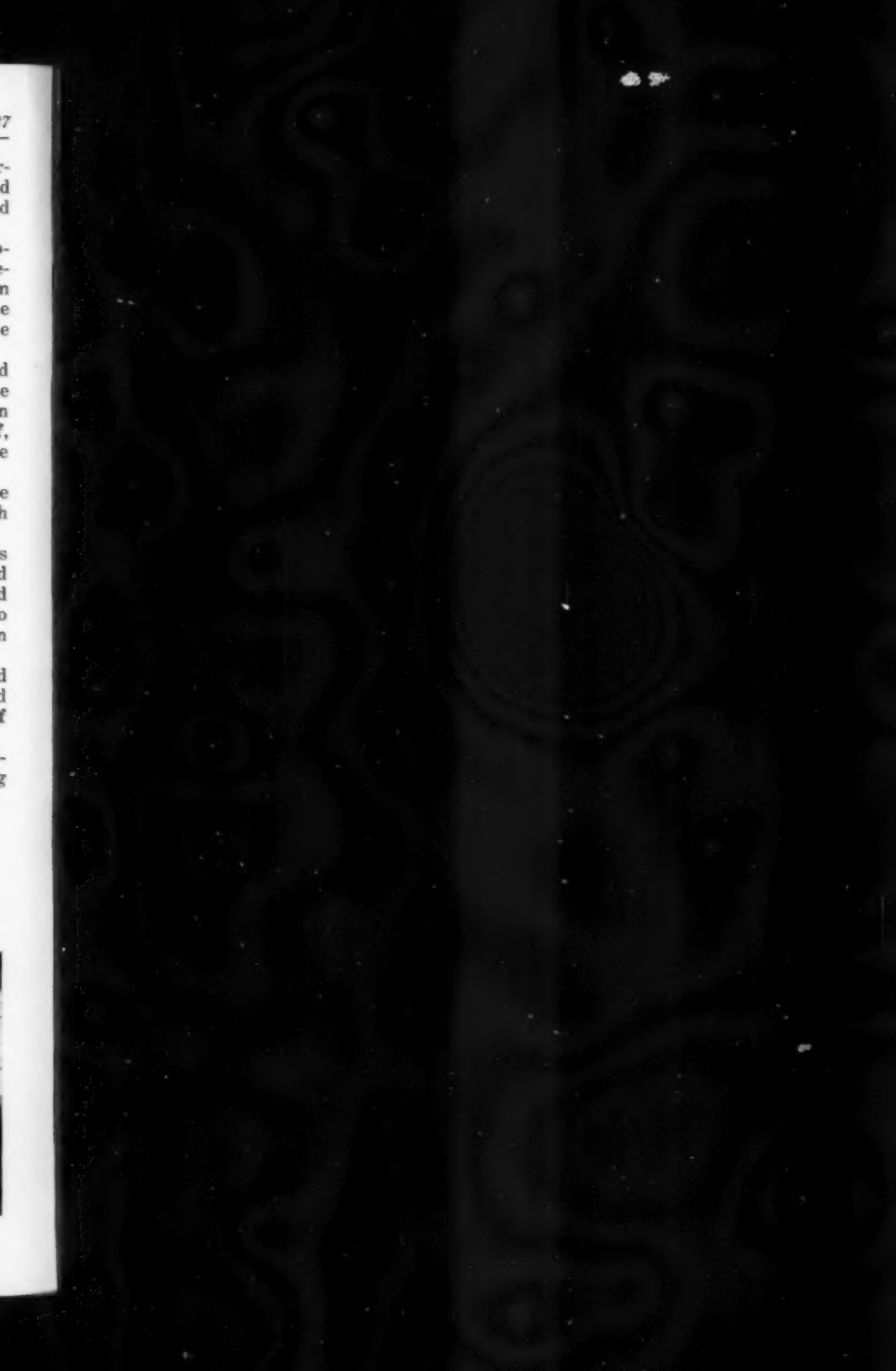
The company has several specifications for low cost refinishing



Above: Flowing high-bake enamel on to fenders, and hanging the fenders to overhead conveyor which carries them through the baking oven.



Below: Removing baked - enamel - finished fenders from conveyor which has moved them slowly through the baking oven.



FOR METAL, WOOD, COMPOSITION, REED, ETC.

Armitage ARMORLAC LACQUER SYSTEM

The Final Furniture Finish

Permits the most beautiful effects in natural and rich color combinations. Blends in easily with the designer's and finisher's plans for appealing and salable pieces.

A permanently beautiful finish which cannot be achieved with other types of finishing materials, yet application costs no more.

May we submit samples, or arrange for demonstration?

John L. Armitage & Co.

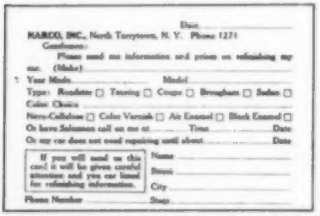
Est. 1876

NEWARK, N. J.

Varnishes--Lacquers--Japans

MANUFACTURERS SINCE 1876

jobs on cars that do not warrant a first-class job. These finishes consist of cleaning up the car, smoothing old material, and applying one or two coats of special air enamel on nitro-cellulose material. This class of finish makes the car look clean and bright at a low cost.



Date.....

MARCO, INC., North Tarrytown, N. Y. Phone 1271

Gentlemen:

Please send me information and prices on refinishing my car. (Make)

Year Made..... Model.....

Type: Roadster ☐ Touring ☐ Coupe ☐ Brougham ☐ Sedan ☐

Color Choice.....

Nitro-Cellulose ☐ Color Varnish ☐ Air Enamel ☐ Black Enamel ☐

Or have Salesman call on me at..... Time..... Date.....

Or my car does not need repairing until about..... Date.....

If you will send us this card it will be given careful attention and you can count for refinishing information.

Name.....

Street.....

City.....

Phone Number..... Shop.....

The mailing card (postal card size) which the company supplies as an information form for use of customers.

A Color Varnish Job—Over Old Material

"Specification No. 2" is a color varnish refinish over old material. It is just as good looking as No. 3 and costs less, but can only be done if the material on the car has not perished. It is always best to have this determined at the factory.

Car is checked in when received at factory, washed, steam cleaned, and sanded down smooth. A special treatment is used over the old material to seal up the cracks that invariably show. Building-up coats are applied and sanded and rubbed out until a smooth surface is obtained.

Over this the ground-color coats, color coat, and color varnish coats are applied and smoothed up. Ornamental painting, striping, monograms, and lettering are done, and over this the finish varnish coat applied.

Wheels are finished same as body tops. Curtains, cushions, interior woodwork and chassis are finished as in Specification No. 3.

Sheet metal is sanded down and refinished with air dry black enamel.

Small nickel plated parts are cleaned and polished.

Should the customer desire sheet metal finished with high bake enamel, it can be done at extra cost.

All re-nickeling can be done at extra cost.

All repairs as mentioned in Specification No. 3 can be done at extra cost.

A Color Varnish Job—Old Material Removed

If the customer desires a fine appearing, lustrous finish on his car, it can be done to the following specification, which is called a complete refinish job.

The car is thoroughly cleaned all over with steam process, to remove all dirt and grease. All old paint is removed from the body, wheels, and all sheet metal.

Primer and filler coats are applied on body and wheels until a perfectly smooth surface is obtained by sanding or rubbing applications on the several coats as applied.

The ground-color coat is then applied, mossed off smooth, and the color coat applied. Over this one, two or three coats of color varnish are applied, and when thoroughly dry it is rubbed out to a smooth, level surface.

Ornamental painting, striping, monograms, or lettering is done, and over this, when dry, a coat of rubbing varnish is applied, dried thoroughly, rubbed out, and the finish varnish applied over. Wheels are finished in the same manner as the body.

All sheet metal, fenders, lamp

PENTASOL has a higher boiling range and evaporates more slowly than the alcohol contained in refined fusel oil. It is mild in odor and without residual odor.

THE SHARPLES SOLVENTS CORPORATION
SHARPLES BLDG., 23rd & WESTMORELAND STS.
PHILADELPHIA

SHARPLES TRADE MARK SOLVENTS

bodies, etc., are removed from car, the old enamel burned off, and they are refinished with black high-bake enamel (480 deg. F.), or they can be refinished with color varnish the same as car body.

The hood can be refinished with high-bake black enamel or with color varnish.

The car top, and fabric or leather top quarters, cushions and curtains are cleaned and refinished with black dressing.

The interior woodwork is cleaned and painted or varnished. Floor boards are cleaned and painted black.

The following outside small nickel plated parts are removed, replated and replaced: Door-handle plates, hood-latch handles, gas-tank caps, and hub caps.

Running boards are cleaned.

Chassis parts that are exposed, including gas tank, are steam cleaned, sprayed black, and given one coat of finish black air dry enamel.

Tires are cleaned and dressed black.

New running boards, or covering or binding, re-nickeling of lamps, bumpers, radiator shells, windshield parts, etc., repairs to sheet metal work, glass, upholstery, brakes or tires can be done at extra cost.

A car refinished to this specification has the appearance of a new car. The materials used are the best obtainable; the workmanship cannot be excelled; it is a durable and beautiful finish of the highest class.

A Nitro-Cellulose Job

Specification No. 4 is for nitro-cellulose finish. This is a lasting finish that can be cleaned and polished with less care than must be given to varnish finishes. It is not as highly lustrous as varnish, but at this time is believed to be far more durable. If the car was previously finished with paint and varnish, this old material must be entirely removed.

The following specification is the result of experimental work followed by operations on 500 jobs done with this material. Some have been on the road one year and are still in first-class condition.

Car is received and washed, and the following is standard shop Specification No. 4:

Choice of 15 standard colors in nitro-cellulose.

Two colors; additional colors extra; special colors extra.

Body burned off to metal and cleaned up smooth, followed by a clean-off with alcohol.

Apply primer coat.

Apply filler coats until smooth, level surface is obtained, sanding and rubbing between coats as necessary.

Apply finish color coats sufficient to obtain a solid color and smooth surface; polish this surface.

Do striping or ornamental work.

Top, cushion, curtains—clean up and dress black.

Hoods—black enamel high-bake, or finish same as body.

Sheet metal parts—remove from car (except side aprons); burn off; clean up; high-bake enamel (450 deg.) two coats.

Side aprons—finish black, or sheet metal can be finished with pyroxylin same as body.

Chassis—steam clean, sand off, spray black, finish black; or finish with nitro-cellulose same as body.

Wheels—finish same as body.

Inside—clean and polish in-

Every One Interested in Better Finishes Needs this Booklet

For the Practical Finisher, Too

FINISHING FACTS, the new booklet prepared by our service department, is free. All you do to get a copy is to ask for one (or more) on your company letterhead.

Because FINISHING FACTS is free does not mean that it is another case of nothing for nothing. We are actually giving away something for nothing, and you'll be the first to say so when you get your copy.

FINISHING FACTS is written in two parts. The first part is descriptive and of interest, to executives. The second part is technical but readable and understandable. FINISHING FACTS will interest the practical finisher or finishing foreman.

Write for a free copy of FINISHING FACTS.

ALAKA *The Practical Lacquer*
LACQUER & CHEMICAL CORPORATION
214-224 Fortieth Street, Brooklyn, New York

strument board, instruments, steering column and wheel, inside wood mouldings; paint floor boards; vacuum clean upholstery.

Tires—dress sides with tire black; paint tire rims black.

Striping and monograms as selected.

This specification is based on the use of two colors. Extra charge is made for each additional color. All repair work and re-nickeling of parts, not mentioned in specification, is an extra charge.

Remove and re-nickel outside door handles and plates, hood latches, handles, gas tank cap, and four hub caps.

If, after examination and test at factory, it is found that the car was previously finished with nitro-cellulose material and it is in good condition, the company agrees to refinish it with nitro-cellulose over the old material at considerable saving to the customer.

The plant is arranged at present to refinish 100 to 125 cars each week. The time for each car in process is three to ten days, depending on the specification. Work is handled on a schedule that assures customers their cars will be in shop the shortest possible time.

Wood Fixture Finishing

Foreman of Wood Finishing and Painting at the American Fixture Co. calls attention to problems involved in finishing wood fixtures and explains, as an example, how a typical mahogany job should be handled

By Edward C. H. Rottmann

FIXTURE finishing, to be successful, must begin in the cabinet department. By this, I mean perfect co-operation and co-ordination between the cabinet foreman and the finishing foreman. The cabinet shop foreman, when considering quality of production, is duty bound to select his veneers, mouldings and framework, according to color and figure of grain, thereby helping eliminate many unnecessary problems of equalizing the color, which in the writer's opinion is the groundwork of successful fixture finishing.

In this article I will only consider the process of finishing a bank fixture in mahogany, since it is in this business that our company specializes. I shall confine myself to a natural mahogany finish, as the natural and light finishes call for the skill of an artisan, in equalizing abrupt changes of colors in adjoining woods.

After the preparatory work, such as sponging and smoothing up the surface, the fixture is delivered to the stain department. Men who take care of this branch of finishing should have some knowledge of blueprints, as a bank fixture comes to the finishing department "in the knock-down;" the workmen must visualize the entire fixture as it will appear installed in the banking room.

AD-EL-ITE

T.M. REG. U.S. PAT. OFF.

Finishing Service

adds to the saleability of your product by helping to increase the beauty, originality, economy and durability of its finish.

All effects produced on your samples are exclusively yours, created by practical men from close study of your design combined with their wide experience and knowledge of present day demand in color and decoration.

- ☐ Bedroom
- ☐ Novelty
- ☐ Breakfast Sets
- ☐ Fibre
- ☐ Kitchen
- ☐ Chairs
- ☐ Dining Room
- ☐ Living Room
- ☐ Office and School
- ☐ Cedar Chests
- ☐ Radio Cabinets
- ☐ Juvenile

Simply check to indicate what type of furniture you manufacture, and return this ad to us indicating when you would like the visit to take place. *An inquiry does not obligate.*

Adams & Elting Co.

1833 Seward Street

Chicago, Ill.

"35 years of wood and metal finishing experience"

Color Harmony

Now, suppose you assume that you see a natural finished fixture door with a red or dark panel, or a dark door frame with a light door, or again, light paneling in wainscot, connecting with darker paneling and the framework around these panels is of another shade, or moulding on the cornice is off shade, etc. Yet all are natural wood finish! Would it not exasperate an artisan to see mahogany fixtures finished this way? I believe such a job makes the same impression on the average person who comes in contact with it.

It all sums up to this: that in such a view there is an absence or a violation of color harmony, and the absence of color harmony produces mental depression, resentment or conflict, wherever found.

Equalizing Color of Wood

In the natural mahogany finish, all dark wood should be bleached out to bring it as closely as possible to the desired color. Bleaching compounds do not give the proper equalizing alone, but the operation is essential and it furnishes a good beginning in this process. The bleaching will completely remove iron and weather-exposure stains, but the natural growth of color in wood will have to be treated by "toning" and "overshading," after bleaching.

The dark pieces can be given a wash coat of white shellac. This will prevent the oil in the filler from penetrating and darkening the wood again. We should bear in mind that yellow, as a base in overshading, will assist materially toward the desired end. In fact, one of the commonest practices is to spray the entire fixture with a wash-coat of shellac before filling for natural finish on mahogany. Pieces that are light can be overstained after the filling operation. This type of finish in our plant demands three coats of lacquer.

The flat "field" surfaces in this work are rubbed by the machine with water and pumice, but the mouldings, etc., are hand rubbed with oil and pumice, to a dull finish.

Paris Designers Feature Motor Car Colors

In Paris, the master couturiers have now developed color schemes for cars—inside and outside—which are available to Americans. These color schemes are verified by their own signatures. It will now be possible to have your car finished in the latest Paris shades, picked out especially for your type of model.

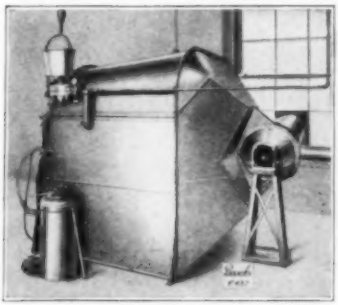
Lanvin gives a lovely scheme for a touring car in royal purple and green, trimmed with black mouldings and with a stripe of old gold, and a town car in midnight blue with mouldings of black and stripings of old rose and yellow.

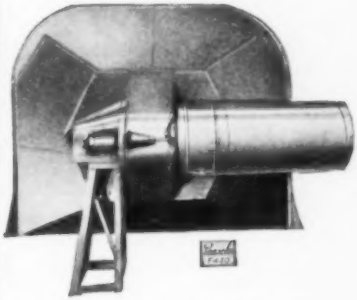
Philippe & Gaston have designed color schemes for two touring cars, one in beaver brown and peach, with mouldings of black and stripes of old gold, and the other in tones of blue and silver.

Lucien Lelong, known for his originality and daring, gives some lovely greens and peach tones for the sport touring car and also creates a town car in royal purple and silver.

Premet, from the Place Vendome, gives a sport car in apricot and cream, with bright green striping, and a town car in sable and green.

Finishing Room Ventilation Improved and Fire Hazard Wiped Out





These safety factors increase production, reduce risk and make maximum efficiency possible. You can have this only when specifying Paasche Superior Ventilating Cabinets—because the single, broad bladed sparkless aluminum fan, direct connected without belt power losses, displaces more air with less effort. "It's patented." The motor is outside the cabinet away from the fumes fully enclosed and cooled with filtered air. The paint, varnish, lacquer, etc., in the air is collected before it reaches the fan, thru a series of sectional baffles, easy to clean and handle.

Paasche Superior Air Conditioning Units clean and dry the air, eliminating all risk of damaging material or finish. They require no packing and clean themselves automatically. Every feature meets the approval of the Fire Underwriters.

Paasche Universal Type Multiplehead Airbrushes cover a much wider range than is possible with any other spraying devices, thereby obtaining the highest grade finishes with the least amount of waste with material from the lightest to the heaviest under absolute control. Send for bulletin G26 and tell us your spraying problems. Without obligation to you, we will place our twenty years' experience at your command. The Paasche line is complete from airbrush to sanding or rubbing machines.

Paasche Airbrush Co.

1921 DIVERSEY PARKWAY, CHICAGO

New York 54 Dey St. | Detroit, Mich. 11-237 General Motors Bldg. | Cleveland, O. 418 Perry Payne Bldg.

Los Angeles, Calif.—411 Douglas Bldg.

THE LARGEST EXCLUSIVE MANUFACTURERS OF FINISHING EQUIPMENT

IF 1–Gray

From Jenny, there are no less than four combinations in beautiful colors—two in various tones of green and gold and two in old rose, apricot and brown.

Callot creates the colors for two touring cars, a sedan and a small town car, the most interesting of which is the town car in jade and powder blue with mouldings of black and stripes of Cafe-au-lait.

Vionnet has a flare for the sport car, one color scheme in particular being most interesting with its tones of Dekkan brown and London smoke.

Paul Poiret, that master of the exotic, creates a lovely town car in shades of brown with bright green wheels, and a touring car in vermillion and cream.

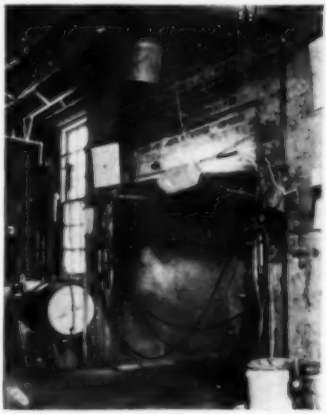
Patou gives a cabriolet in biege, a sport car in two tones of gray and a town car in black and argent, while Drecoll has chosen a town car in brown and cream and a touring car in delicate shades of gray blue.

The Paris creators of style have again waved their magic wands, and the cars of tomorrow will glide down the avenue, and flash over the winding roads, gloriously attired. Adding their bit to the pagentry of Life and Color, with which all Nature surrounds us.

From the final letter in the series of Paris letters of Capt. H. Ledyard Towle, of the Duco Color Advisory Service.

Attention to Spray Equipment

Various articles have appeared in INDUSTRIAL FINISHING in regard to the care of fan blades. For example, lye has been suggested where other than aluminum blades are used; of course, lye is all right in such cases (where fan blades are not aluminum) but in most lacquer rooms, a can of dirty thinner is available for cleaning purposes. Just place the fan blades in this and they will be O. K. in a short time, even through lunch hour.



Some workmen draw the cleaned hose across the opening of the booth and leave them over night and over holidays.

Fan blades should be scraped every few days, as the spray dust clings to one edge of each blade; and if this accumulation of material is allowed to stay on the blades long, it will throw the fans out of balance and as a result, the wear on the bearings will be excessive and uneven.

Where lacquer is used, a thin coat of grease or wax on the fan blades will prevent any drying of finish on the blades and as a result the task of cleaning them will be easier. The grease cups on fan bearings should be kept well filled, as the fan revolves very fast and soon uses up the lubricant.

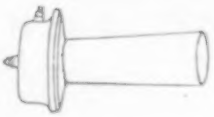
NEWCOMB
SYPHON VENTILATED CABINET

THE "NEWCOMB" GIVES YOU everything you could want in a spraying cabinet and much more than you had thought possible.

Let us tell you about our latest and best development: the fan with direct connected motor, independent of booth, with rear of booth fitted with reclaiming chamber and baffle-doors.

Grand Rapids Blow Pipe and Dust Arrester Company

Dust Collecting Systems 527 Monroe Ave. Grand Rapids, Michigan



The last touch you give it is the first thing buyers

TO a buyer, finish is just as important as design or workmanship—sometimes more so. The finish is the first thing he sees—the visible quality on which judgment is passed. To him, a beautiful finish signifies a beautiful product...

For nearly fifty years the great industrial houses of this country have been extensive users of Egyptian Lacquer products. Today, Egyptian Lacquer finishes—either clear, in color, or with opaque pigment—are used extensively on every type of interior wood and metal surface. Egyptian Lacquers protect and beautify—add a delightful quality of warmth and animation to your product—a deep, rich lustre—and increased salability.

Egyptian Lacquers are backed by half a century of skill and experience. Our service department is prepared to give practical, expert advice on any phase of Lacquer finishing. We invite you to submit your individual problems.

The EGYPTIAN LACQUER MFG. CO., Inc., 90 West St., New York

The maker who is proud of what he makes, uses Egyptian Lacquer

buyers see

THIS SYMBOL is the Egyptian Lacquer trade-mark. Its central figure is that of MAAT, *the Egyptian Goddess of Truth.* It typifies the integrity with which all Egyptian Lacquer products are made . . . their precision, balance, and true quality . . . the fidelity with which Egyptian Lacquers meet the particular needs of the manufacturer who seeks true beauty, fine finish and permanent protection for the products that he makes.

EGYPTIAN SUPERIOR LACQUERS

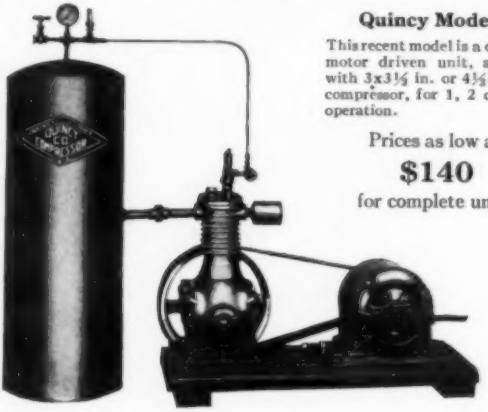
FOR OVER 40 YEARS

Kauffman Radiator Shield made by American Metal Products Corporation, St. Louis, Mo. — users of Egyptian Lacquers exclusively.

Completely equipped branches in charge of practical men *are maintained in these cities:*

ATLANTA, BOSTON, CHICAGO, CLEVELAND, DALLAS, DETROIT, LOS ANGELES, PHILADELPHIA, PORTLAND, ORE., SALT LAKE CITY, SAN FRANCISCO, SEATTLE, ST. LOUIS

EGYPTIAN Lacquers



Quincy Model H

This recent model is a complete motor driven unit, available with 3x3½ in. or 4½x3½ in. compressor, for 1, 2 or 3 gun operation.

Prices as low as

$140

for complete units

Always Steady Pressure and Clean Air

The heart of your paint spray outfit is the compressor. Make sure that yours is a Quincy. Then you'll know it's ample in size and power—a source of uniform pressure and dry, clean air that you can always depend upon.

In the complete Quincy Line are models for use with all standard spray gun outfits. Each is engineer-built by us, according to our original designs. Each will pay its way in your shop; earning profits by helping you turn out better jobs; lowering costs by insuring continuous service and long life. Full information gladly sent upon request.

Clip and mail this advertisement for our latest Paint Spray Bulletin

QUINCY COMPRESSOR CO.

305 Maine St. **Quincy, Ill.**

K751

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Spray booths should be thoroughly cleaned at least once a week, all dust being cleaned up to assist in the production of high class work. A light coat of grease with a coat of wax over the interior of each booth will make cleaning easier, as lacquer will not harden over these coatings.

The turntable is very hard to keep clean but it should be kept so, nevertheless. Worn sandpaper from the woodworking sander makes a good protective cover for the turntable. This is inexpensive and can be renewed every day. A sheet of builder's composition board is better, however, because, after it has become coated, a layer can be striped off and you have a new clean surface again.

One of the most important accessories at the spray booth is the material hose. This hose should be cleaned every night, as lacquer left in the hose soon rots it. An unclean hose soon clogs up so it cannot be used at all. First blow out your hose by holding a finger over the nozzle and pressing the trigger. This action will blow the thick part out. Then disconnect the gun and, with a small funnel, pour thinner into it; wash the interior until the hose is clear. This takes a little time but is well worth while.

Often it helps to have a wire with a piece of cloth attached to the end. Pull this through the hose a couple of times and then dry the hose. Cleanliness prevents the hose from rotting.

A hose should be laid out straight on the floor after it has been in use, to prevent any cracking. Wherever a hose cracks, the rubber loosens and particles of it flake off and get into the material being applied.

The gun should be well cleaned every day. The nozzles, in particular, must be clean and when not in use they should be kept in a covered container of clean thinner. It is important to drain the separator at least once a day to clear it of any accumulated water and oil. Oil should be kept free from the air hose, as this causes black specks on the finished surface.

To do first class work, it is necessary to keep all equipment in first class order. Remember, too, that a few extra parts for the spray gun come in handy in emergencies. By attending carefully to all these details and keeping everything in first class order one is in line to get real production and at the same time obtain a finish that is first class in every way.—J. K. Cooper.

J. C. Whitlam Mfg. Co. Have New Varnish Plant

The J. C. Whitlam Mfg. Co., of Wadsworth, Ohio, announce the completion of a new varnish plant in connection with the paint factory. All construction of the cooking and storage buildings consists of brick, concrete and steel.

Work has also been started on an addition to the paint factory, the addition to be used for the manufacture of roof coatings and roofing cements.

At the new varnish plant the company is now manufacturing a full line of varnishes, grinding liquids and special oils.

LACQUERS for Wood

Pioneers in wood lacquers that give a finish that lasts. Made to satisfy users for sixty-nine years. Write us your requirements.

Chas. Cooper & Co.
90 Worth St., New York
Works—Newark, N. J. Since 1875

Industrial Finishing

PRACTICAL PUBLICATIONS, INC.
Publishers
Room 603, 222 E. Ohio St.
Indianapolis, Ind.

Issued monthly. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

JANUARY, 1927

Fire Insurance and Protection

One of the serious mistakes being made by a number of concerns that have their manufacturing equipment housed in new buildings of the so-called fireproof type, and supplement this with approved fire-fighting equipment, is to carry insurance that represents only a small fraction of the total value of investment involved. This is a case of one's sense of security carrying him beyond the bounds of good business judgment.

A careful banker, extending a heavy loan on such a building, or on equipment in such a building, would insist upon 80 or 90 percent insurance coverage, regardless of how safe from fire it appeared to be. There is always a possibility of a fire starting and of the fire and water doing practically a complete job of ruining the equipment and the building.

Modern building construction and installation practices, absolute cleanliness, and approved safety precautions all help to reduce the possibility of a fire getting started, or going far if it does start, but they do not entirely eliminate the possibility of fire. The differences in insurance rates applying to different types of plants indicate the proportional element of hazard involved.

Fireproof or slow-burning construction, supplemented by an automatic sprinkler system, electric wiring in conduits, enforced orders on "no smoking," fire-fighting equipment, cleanliness and a high class of intelligence among workmen—all these factors help to get the concern lower insurance rates. It is in this direction that management should look to save money. Make the plant as safe and keep it as safe as possible, but let a dependable insurance company carry the risk. Insurance companies are in business to take these chances, and they have plenty of money with which to pay claims—paying them promptly.

It is paradoxical, but true, that some of the best risks are destroyed, while some of the worst kinds of risks continue unharmed year after year. Well-managed insurance companies will not write insurance on some of the worst risks, but they do quote very low rates on the best risks. Manufacturers are urged to make poor risks good and, after they are good, to protect them with sufficient fire insurance.

Reading Articles — Inspecting Goods—More Suggestions

Have you ever stopped to consider that your reading of INDUSTRIAL FINISHING is, in a sense, comparable to your inspection of finished goods which may come to your notice? As you examine a piece of furniture, a motor car, or some other finished goods you may admire it, or criticise it, or pass it by indifferently if it doesn't appeal either to your sense of admiration or criticism.

Some things you admire in design but not in finish; in other cases you like a color scheme but are not satisfied with the workmanship. You notice some objects overdone in ornamentation while on others something is lacking. Some things you see impart an inspiration or an idea; others make you want to tell the designer, or the finisher, or someone what's wrong, and why. So it is, perhaps, with articles you read in INDUSTRIAL FINISHING.

Improvement comes through development, and development is the result of the work and co-operation of many minds. From the suggestions or comments and the praise or criticism of buyers, users and salesmen, progressive manufacturers are enabled to develop goods which will meet the approval of the greatest number of prospects.

The publishers of INDUSTRIAL FINISHING solicit your co-operation in further developing and improving this journal to make it more nearly the ideal industrial finishing magazine for the greatest number of readers and advertisers. Let us have your suggestions, comments, criticisms —and, if the publication merits it, your indorsement, if you feel stirred sufficiently to express it.

Foremen Qualifications

While it is desirable that every foreman of finishing and painting be a skilled workman possessing an abundance of practical and technical knowledge of the trade, these qualifications will not always get or hold a man the job of foremanship in modern finishing and painting departments. Men who use these splendid qualifications as a lever to dictate to their superiors, and to insist on having everything their own way, are not popular with management.

In a number of instances in the past year or so, foremen of this type have been replaced by men who, although lacking in practical finishing experience, are willing to lend their co-operation for the good of the organization, and who can be depended upon to get things done with reasonable efficiency and economy.

These last-named qualifications are of vastly greater value to men who hope to advance in any trade, profession or business. Men of this type are easily recognized and their value is sure to be appreciated and rewarded. They are of greater help to their employers, to their fellow workmen, and to those dependent on them at home.

London—The recent Motor Car Show at Olympia was filled with color. Green and cream, orange and black, blue and silver; whole families of browns and grays, make the new cars seem a very flower garden. The way to Hampton Court and Windsor will lie like a silken scarf in the snow when these cars take to the high-road on a Winter's day.—H. L. Towle.

Lacquer finishes are highly volatile. If the spray gun is held at too great a distance from the work the air evaporates and drives away the solvent in the lacquer. As a result the surface of the work takes on a rough appearance, due to the absence of solvent.

In all industrial arts, ornamentation in form and color must have a purpose.

Cost Information
How to get it and
what to expect of it

Costs in the Finishing Room—III

Revealing the principles and details of the premium plan of paying productive workmen and how it is applied; also explaining a basis for figuring "burden" or overhead costs

By E. F. Werner

IN THE preceding article I discussed some of the wage payment methods, such as day work and piece work, going into detail on the relative advantages and disadvantages of the various systems. One of the systems extensively used is a modification of the Halsey Premium Plan.

The original plan consisted in giving workmen premiums equal to one-third or one-fourth of their hourly rates for the time saved over past performances. This has been modified so that, as commonly used at present, a standard time is selected for the given operation (after careful study of the prevailing conditions), which is known as the "base or standard time."

There is then added to this figure, which represents the length of time in which the work should be completed by average skill and industry, an extra amount, the sum of the two forming the time limit or time allowed. For example, if a time study shows that the actual time required to finish a job is four minutes, there is added to this an allowance of 15 or 20 percent, which total amount will constitute the time allowance for the work.

If the operator finishes the job in less than the total allowed time the difference is a saving, and this difference is divided between the finisher and the company. Some companies divide this saving 20 percent to the finisher and 80 percent to the company. Other firms go as high as an equal division on the time saved, between the man and the company.

Factory Conditions

One of the problems in this method is to arrive at the "allowed time" over and above the based time arrived at by time study methods. Where working conditions are ideal in a clean, comfortable shop with plenty of light in the spray booths or over the benches, or where the equipment is strictly modern and the work proceeds gradually and uniformly from bench to bench, where the materials are brought to the finisher so there is little or no delay between operations, the allowance would be less than in a shop where working conditions are less favorable.

Another point to be considered is the bulk and weight of articles being handled. On pieces that are small and light, so the finisher can easily pick them up and move them about, the elapsed time will be less in proportion than on pieces that are large and cumbersome.

NEW FEATURES

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This new Spray Booth has been developed by Peerless Engineers particularly for enamel finishing. Manufacturers of small wood and metal products will find it especially efficient.

The arrows point to advanced perfections that will save time, costs, and improve the work. The tried and proven principle of the Vertical Exhaust with its saving in floor space and efficient direct motor and housing has been embodied. Specially constructed baffle plates with even distribution of suction over the entire area of the booth. These baffles are easily and quickly removed for cleaning. Note the side door for cleaning the settling chamber and the side faucet for attaching hose for flushing.

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COMPLETE SPRAY FINISHING EQUIPMENT

Features of Premium Plan

The disadvantages of the Premium Plan lie in the fact that while the effort per piece increases with a large output, the finisher receives less and less for each additional piece produced per unit of time. This means that sooner or later the finisher finds an output which will give him the utmost return for the amount of energy expended, but which may not be the greatest output that could be arrived at under other methods of payment.

More careful labor is required to maintain the records and reports than under the straight piece-work system. The advantages of the system are as follows: The finisher is assured of the minimum day rate. This means a whole lot at the start; it prevents a new man from becoming discouraged through small earnings before he becomes skillful on the work being done.

Some firms pay new workers a day rate for a week or two, until they become skillful in the line of work. Their rate is purposely made low, however, so it is to the men's interest to be transferred to piece work as soon as they acquire the necessary skill.

One of the advantages for the company, under this system, lies in the fact that a larger percentage of the total savings go to the company. On straight piece work the more a man makes the more he gets, the company only sharing in a reduction of the unit overhead, while with the Premium System, the more a man makes the more both the finisher and the company make.

One of the serious objections to the piece-work system is caused by the workmen believing and, often rightly so, that with increased production a serious price reduction will be made. The Premium System, with its stationary standards, does not meet with the same prejudice.

The absence of the objectionable feature cited above, for piece work, and also the fact that a minimum day rate is guaranteed, make it easier to install the Premium System as far as the workmen are concerned. In addition, the present plan gives opportunity to make cost reduction by switching operators with lower hourly rates to do the work, without making any cuts in the allowed time or premium percentage. Any fluctuations in the labor market are met by this system, which avoids one of the principal objections to the piece-work system during dull or slack times.

Figuring Overhead Expenses

Another problem confronting the manufacturer is the proper method of distributing "overhead expenses" or "burden." Many systems have been advocated, each having its strong and weak points. While no system is entirely satisfactory, some one method must be chosen to properly take care of the indirect labor and other expenses which accumulate so quickly in every plant.

For example, when the finishing foremen directly supervises the various operations, how much of his time should be charged against the job and how much of the time should be distributed over the department? Some of the methods advocated, are as follows:

Distribution of overhead on the raw material basis. This system is quite commonly used, and is satisfactory where only slight variation exists between the grades and type of production

The Watchlike Precision of the

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Uniformity of Spray

Accuracy of construction in interchangeable parts of the SPRACO Gun has made it a dependable tool in the hands of operators throughout the United States.

The Spray Engineering Company and its subsidiary, The Spraco Painting Equipment Company, are entrenched behind statistics of a Research and Development Department, whose tests extend over a period of fourteen years, resulting in several patented features covering essentials necessary to meet the refinements within the industry.

Our years of experience convinces us that a spray gun, to do a superior job, demands a surety of precision equalling a chronometer. Our Model 14-A Lacquer Gun, especially designed for the finishing operator, is made on these lines and embraces all our perfected improvements to date and is generally accepted as the finest piece of practical mechanism the industry has yet produced.

Extra nozzles to vary the type of spray have been eliminated in this perfected tool. The same nozzle will put on different weights of materials in a cone or flat spray, through a simple turn of adjusting nuts.

Send for bulletin 103 and read of SPRACO products which are making dividends for your competitors.

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produced. However, when two pieces having the same area to be covered, but one, on account of being a high priced article, requires additional sanding and finishing to prevent runs and overlaps, this method is not satisfactory because of unequal value.

Some of the other methods are based on the percentage of direct labor costs, and also upon the so-called machine rate method, but the one most uniformly followed is a productive labor-hour method. Division of burden on this method assumes, and properly so, that overhead is more a matter of time than of cost. It takes into consideration the skill and judgment of the workmen. Moreover, the necessary information for arriving at the rates is obtained from records, which all factories have or which can be easily started.

The burden rate under this system is figured by dividing the total cost of factory overhead, for a given time, by the total number of productive hours of direct labor for the same period. The rate per hour thus obtained is applied to the actual number of hours of labor spent by the finisher upon a given piece of work.

Profit or Loss?

The points outlined in this article so far give rise to the question often seriously considered by manufacturers, but which so often is never adequately answered. The point is, why should cumbersome methods, requiring additional clerical help, forms and procedures, be installed? If, at the end of a year, a profit is shown in the bank account, why worry if a loss is made upon some of the items produced? The answer is immediately obvious. Why produce articles on which a loss is sustained if there is no means of identifying them?

Often, to meet competition, an article must be produced at a loss, but if this loss is known and the article is not pushed unless necessary, no great harm may come of it if a reasonable profit is shown on the other articles produced. If no cost system is used, the manufacturer does not know which articles he is producing at a loss; he might, therefore, actually push the article on which the greatest loss really occurs.

Value of Cost Information

Under any cost system the following things should be expected:

1—Insure profit. Every manufacturer is concerned with two items—cost and profit. There is a definite dividing line between profit and loss, and the location of this line can and should be accurately determined.

2—Proper business control. Records of cost are valuable in themselves but they are more valuable in that they bring to light imperfect internal conditions and suggest corrections.

3—Increased production. Increased production depends largely upon the knowledge the management has upon all factors entering into the manufacturing. Proper control and increased output are adopted when warranted by the cost records.

4—Checking of special items. Costs of special items are available, forming a basis for the estimation of new work in the future.

5—Control of overhead. A detailed cost report, showing expenditures necessary to produce various articles and any unnecessary increase is readily noted.

6—Intelligent competition is brought out by an accurate knowl-

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edge of costs. If a manufacturer allows himself to underbid a competitor, whose bid is based entirely upon guess work, he is doing so with open eyes, because he knows his actual cost to produce the article.

7—Unprofitable lines are determined. As cited above, less pressure can be expended in pushing competitive lines that are known to be unprofitable, while increased pressure can be exerted on items giving the highest profit. In general, all manufacturers are in business for a profit. Foremen and workmen must fully realize that when the company shows a profit there is no assurance that they will receive increased wages.

But if a loss is shown by the company, not only will there be no increases in pay, but, in all probability, the personnel of the organization will be reduced. Some men will be hunting another job. Every man in the plant, whether directly producing goods, or classed under overhead, must do his part to increase production and to reduce the unit cost of the articles manufactured.

Wood Finishing—Surface Preparation

Surface preparation for wood finishing should include attention to the following operations: drying, sanding, sponging, staining, and filling.

The importance of proper drying, sanding, and sponging in the production of a permanent high-grade finish cannot be overemphasized.

Drying determines the condition of the wood, and obviously this plays an important part in determining the effect of time on a given finish. The normal expansion and contraction of a film of finishing material is confined to very narrow limits, and unless the wood is properly dried to a definite moisture content, atmospheric changes will cause serious finishing troubles. A study of finishing conditions should always start with a check-up on the operating characteristics of the dry kilns.

The importance of sanding is more often appreciated than that of drying. This is especially true since the advent of lacquer, with its much lighter body than varnishes. Careful studies have definately shown that it is much more economical to increase sanding costs in preparing a surface for lacquer than to depend upon subsequent finishing operations to cover defects.

The additional cost of sponging is well justified in the production of high-grade finishes. In its effect it is comparable to the value of sanding with gradual reduction in fineness of paper grit as against a sudden change from coarse to fine paper. It reduces the amount of sanding required after staining, and the net effect is not only to produce a smoother surface but also to reduce the danger of cutting through the stain.—S. M. Silverstein.

From paper read at Annual Meeting of A. S. M. E., New York, Dec. 6-9, 1926.

Louisville Co. Remodels Lacquer Plant

The P. H. Callahan Co., division of the Louisville Varnish Co., which makes all of its lacquers, at a separate plant at Floyd and Eastern parkway, is fully remodeling, tearing down and moving some old buildings, tanks, etc., and putting up some new ones. The plant at one time was property of an oil company, was purchased at court sale, and used as a tank storage farm by the company, until turned into a lacquer plant.

Note This ONE Thing

SEE how closely this operator is working to the surface of the cabinet. The spray that makes this possible assures evenness in the finish, a finish that endangers no comebacks and requires none of the usual costly retouching. Hand-rubbing is reduced to a minimum. He is working closely to the surface with a Binks Spray Gun.

This gun atomizes at the immediate outlet of the nozzle; the discharge is a fine, easily controlled mist. Were it not for this feature, atomization would take place at the end of the spray, making a long, hard-to-control spray necessary. In the short spray, permissable with the Binks Spray Gun, there is ***no evaporation*** of low boiling solvents. Every ingredient is applied intact; every ingredient serves the purpose for which it was intended. It's in the applied finish—not in the air.

The Binks Spray Gun is a good gun. You should consider it for your use. Full details upon request.

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Notes on Use of Shellacs

Calling attention to some problems involved in the purchase, storage and application of orange and bleached shellacs, as employed in modern wood finishing

By Frank V. Faulhaber

THE matter of shellacs sometimes brings in a world of trouble in finishing rooms, for divers reasons, and particularly in the case of the beginner in finishing room practice. The foreman of one large finishing department has some interesting pointers to offer in this connection. It is his contention that the superintendent, or whoever is invested with chief responsibility for the product, should try to confine purchases to certain firms, and then to co-operate with the manufacturer's representatives.

As he observed: "The men who sell the product have some well-defined experiences and instructions concerning shellac and its proper use. The salesmen get ideas from finishing room foremen and finishers in different factories. They in turn can share the different experiences."

Storing Shellac

A considerable amount of trouble, it is pointed out, lies at the door of careless or otherwise improper storage of shellac. The factory should not purchase too far ahead, and what is bought should be taken care of properly.

A matter of significance concerns the keeping of shellac in proper containers. Orange shellac, for instance, should not be permitted to come in contact with metallic containers of any kind. The least bit of metal tends to discolor orange shellac, and thus brings in another trouble. Bleached shellac should be retained in wooden or earthen containers.

Bleached shellac should be kept in a cool, dry place; otherwise it is apt to "cake" and become insoluble. Bleached shellac varnish should preferably be filtered through some light material, like cheese cloth folded over a number of times. This insures a purer product and enhances the finishing possibilities.

Age and Impurities

Where finishing troubles are being encountered, another cause may be the age of the bleached shellac. Old shellac, especially when otherwise affected by storage and atmospheric conditions, has a tendency to deteriorate. Using it then may bring in any number of troubles which will puzzle the finisher as to what may be at fault, he knows that when originally the product was of the best. It is not only desirable to secure quality shellacs, but to purchase just enough for immediate requirements, and to see to it that all those in any way responsible, will take proper care of it.

When shellac turns gray the reason is generally due to adulteration, or by reason of certain chemicals which have not been removed properly and thoroughly. Moisture has a tendency sometimes to turn shellac gray. To remove unsightly spots and

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Be sure that the air supplied your air sprays or air brushes is absolutely free from oil and moisture. Put Gast Compressed Air Separators on your lines and always get a perfect finish. Air brushes were never designed to operate in the presence of moisture. They cannot produce a perfect finish with oily, wet air.

The course of the air through a Gast Separator is indicated by the arrows in the sectional photograph above. In passing through the slots from the inner to the outer chamber the air travels through multiple thicknesses of coarse mesh brass screen. Every particle of oil and moisture is deposited on the screen and drains into the space below. The air delivered to the appliance is perfectly dry and free from oil.

Gast Compressed Air Separators are made for ¾-inch and one inch lines. You can try one for thirty days without cost or obligation. Write for particulars.

Smith-Monroe Company
223 South Main Street
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IF1-Gray

bring back the original color, it is desirable to resort to the use of heat, which solves many finishing troubles.

By applying a double coating of "banana oil," previous to waxing wooden products on the higher finishes, another tendency towards graying will be discouraged. Many factors must be considered and any one of them may account for an unreasonable amount of poor finishing. By paying attention to the different elements, and by exchanging ideas with the different finishers, a foreman's finishing-room problems will be made easier, his work will be improved, his output will be increased and the entire department will function more efficiently.

Shellac and Solvents

One and one-half pounds of shellac, dissolved in a half gallon of solvent, is about the correct weight to use as a ground-work for subsequent finishing coats of other materials. If one is making a shellac finish, the amount of shellac may be increased to 2-lbs. to ½-gal. of solvent. Denatured alcohol is the best shellac solvent in general use, because it dissolves the shellac quickly, works freely under the brush or with the spray, and dries rapidly. Some chemical productions known as "wood" alcohol are very good but some do not work freely enough under the brush to be satisfactory unless they have been doctored with Venice turpentine or glycerine; this doctoring is not recommended for use under varnish.

Seek Information

In those plants where finishing troubles are met with altogether too frequently, a wise procedure is to call in the representatives handling the various shellacs, and discuss the problems. Each man will have some worth-while pointers. Many of the representatives are rather liberal with their suggestions and are glad to furnish information. The finishing foreman, or the superintendent, may not hazard the educational possibilities along this line, thus overlooking the importance of the men. It is the same way with the finishers.

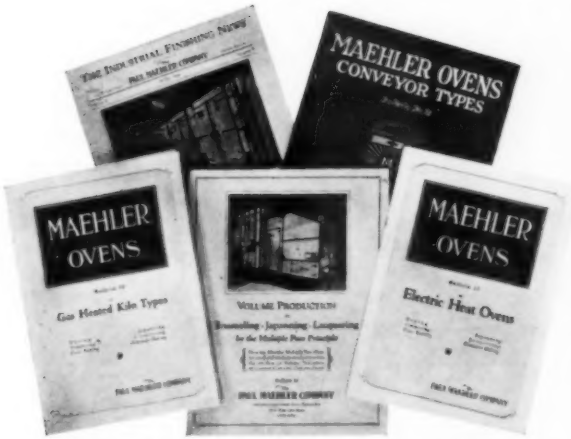
In one case a finisher had fewer troubles than others in the same room. When queried, he explained that it was always his practice to ask for information and counsel from whoever he thought might be competent to help. In that way he made steady progress, and even to this day it is his policy to seek improvements and suggestions.

In those finishing rooms where problems are continually arising in considerable number it would be timely to stage meetings regularly, where all finishers could attend, including the superintendent or works manager and the finishing foreman. It might be wise, too, to invite a representative of some concern selling shellacs, encouraging the latter to lecture on shellacs and their finishing possibilities. So far as the lectures alone would be concerned, there would be great opportunity for learning, and the whole department would have something to gain.

George B. Marentay Passes On

The Akron Varnish Co. of Akron, Ohio, announces with deep sorrow the death of its Vice President, George B. Marentay, which occurred on Friday, Dec. 17, 1926.

This Section is devoted to the application, baking and polishing of finishes to be dried in ovens.

Baked Finishing

These Bulletins Will Interest You

They describe and illustrate various types of gas, electric and oil heated ovens, also special types of conveyor ovens used in connection with automatically dipping and baking large and small parts. Volume production in enameling, japanning and lacquering is the paramount idea back of Maehler Ovens. May we send you these bulletins?

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FINISHES

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DAYTON, OHIO

Mass Production on low-priced cars

Progress in Automobile Finishing

This article in the series by a consultant on finishing problems explains the operations of putting the surfaces of car bodies in condition for the application of flowing varnishes

By K. N. Kathju, M. S.

THE ousting of good brush hands has erroneously been attributed to the advent of pyroxylin finishes, and their application by the airbrush. Nevertheless, those of us who have followed the paint game more or less religiously will recall the hasty exit of the brush hand at the ushering in of the "flow system" of finishing.

Flowing car bodies in the large automobile plants was adopted under the most trying conditions. For example, the paint foreman in a certain large plant hesitated to use the flow system for purely selfish reasons. He held his job because he excelled those working under him in the wielding of brushes, and was loathe to let a relic of the olden times slip from his fingers. Fortunately, however, the paint chemist and formulator, working hand in glove with the factory executive, succeeded in putting the new system over on the paint foreman.

The executives of the automotive industry, being far-sighted and alert, it was but a comparatively simple matter for the paint and varnish manufacturer to prove that the flow system of painting was more economical for mass production, since it eliminated the cost of equipment and the cost of material used, cut down the skilled and unskilled labor, thereby effecting unheard-of economies of great importance.

Spurred by his success at a mutual understanding with, and co-operation of, the executive, the paint chemist, formulator and manufacturer paved the way for an infinitely better and cheaper finish—the pyroxylin finish.

Cleanliness Important

It has been wisely said, "Cleanliness is next to godliness," and what may be universally true of the little things of life, cannot but be true of particular phases of it.

One of the greatest adjutants to good finishing is cleanliness. This fact must be impressed on the paint foreman and his finishers. In fact the saying that "A tack-rag is a painter's best friend," is considered an axiom in paint circles.

The painting of automobiles enmasse is a very instructive and interesting sight. The physical, chemical and even physiological factors governing it are so intimately entwined around each other that at best they look like a hopelessly chaotic conflagration to the uninitiated.

Typical Production

As the automobile in construction jaunts steadily along the conveyor it is accosted by a group of sturdy sanders who very carefully obliterate all

burrs, deep scratches, etc., from the surface of the car body, using a rough grade of sandpaper. The sandpaper very often used is 6/0 Al. oxide cloth or its equivalent.

The car body has hardly had a chance to make a getaway from the hands of sanders, who made an attempt to obliterate its birthmarks, when the accomplices of the construction gang—the hammer-out men—come to its rescue and, as it were, "lift its face" in spots.

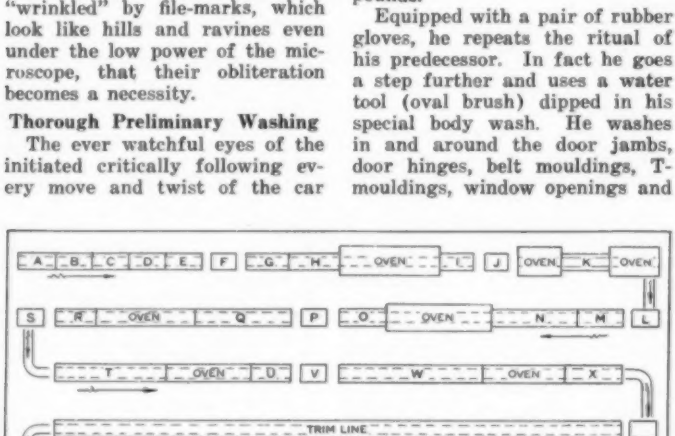
Rough and tumble treatment accorded by the construction workers leaves the surface so "wrinkled" by file-marks, which look like hills and ravines even under the low power of the microscope, that their obliteration becomes a necessity.

Thorough Preliminary Washing

The ever watchful eyes of the initiated critically following every move and twist of the car body in construction, not satisfied at its shabby appearance, wash it off quickly with a towel or cheesecloth dipped either in kerosene or special mineral spirits, thereby removing a major part of file-dust, grease, oil, etc., and immediately wipe it dry.

The acidity of the soldering compound eats into the sheet metal on which it is used for repairs, and a workman along the line deplores the necessity of washing the surface of the car body over again to remove the acidity of the said soldering compounds.

Equipped with a pair of rubber gloves, he repeats the ritual of his predecessor. In fact he goes a step further and uses a water tool (oval brush) dipped in his special body wash. He washes in and around the door jambs, door hinges, belt mouldings, T-mouldings, window openings and



A recommended layout of equipment for flow-finishing process, which includes sanding, brushing, baking and air drying. (Not drawn to scale).

A—End of construction.
B—Rough sanding.
C—Washing.
D—Hammer out.
E—Final wash.
F—Brushing upper prime, at turntable.
G—Flowing prime.
H—Drip pan.
I—Water sand.
J—Glaze, at turntable.
K—Water sand.
L—First color varnish (upper) at turntable.
M—Flow first color (lower).
N—Drip pan.
O—Oil sand.
P—Second coat color (upper) at turntable.
Q—Flow and drip second color (lower).
R—Oil sand.
S—Third coat color (upper) at turntable.
T—Flow and drip third color (lower).
U—Oil sand.
V—Fourth coat color (upper) at turntable.
W—Flow and drip fourth (lower).
X—Oil sand.
Y—Finish (upper) at turntable.
Z—Flow finsh (lower).

other almost inaccessible places, to obtain a scrupulously clean surface. Such a wash may be made up as follows:

Den. alcohol ____40 per cent.
Water _____58 per cent.
Hydrated ammonia, 2 per cent.

The car body **Priming** is again wiped dry with clean cheesecloth, although the nature of the wash makes this unnecessary. Hardly has this been done when glazers daub it all over with glaze, presumably to be mean. Not infrequently, however, the glazers are beaten in their effort and the upper part of the car body is slushed with a coat of metal primer, using a 1½ and 3-in. camel-hair, triple-thick brush. The use of such a brush does not leave any brush marks. The lower part of the car body is flowed with a coat of the same primer. (The flowing process will be described in detail in a later article.)

Preliminary Oven Drying

The car body thus creeping along the conveyor disappears into the dark, dismal and hot regions—the hades—where it is made to atone for its sins of omission and commission, and incidentally is forced dry, in about 2½ hours at about 225 degrees F. When it emerges from the less comfortable regions, still riding the crest of the conveyor, humiliated though it may appear, it is completely transformed for the better.

Sanding

It has had scarcely time enough to cool when its "lifted face" is given a thorough massage of the most unconventional type, with a quarter sheet of No. 280 Al. oxide or No. 5/0 oil bond, garnet sandpaper, or their equivalent, dipped in the trough of clean running water provided for the purpose.

This desire for massage, or sanding as we shall call it from now on, is not actuated by a feeling of sympathy for a sort of rash developed by the prickly heat from which the body emerged, but on account of a desire to further obliterate its facial roughness and wrinkles. This treatment, however, is put off by manufacturers of cheaper car bodies, who make it a practice to daub the surface with fillers, etc., before proceeding to sand the surface, thereby saving time and labor. However, such a practice cannot be recommended, since it does not produce the best of results. To obtain best results the surface must be sanded smooth between coats.

Glazing

The car body at this stage reaches the end of the conveyor (refer to diagram of layout) and is placed on a turntable for glazing. This is most satisfactorily accomplished on the larger surfaces, below the belt moulding, by the use of a 3 or 4-in. flexible putty knife held securely in the palm of the hand, and with the index and the middle fingers riding securely atop the two edges of the knife. For smaller surfaces above the belt moulding, a 1½-in. putty knife may be used to advantage.

The purpose of the glaze being the filling of defects, file-marks, etc., in sheet metal, the glaze itself is thinned to a glazing, or knifing consistency, and applied with the glazing or putty knife pressed firmly to the surface of the car body and pulled across it either horizontally or vertically, following the body lines. The next

stroke is started again at the initial starting point but overlapping the first stroke about ¼-in. This is continued until the entire car body, or as much of it as desired, is glazed. Wherever the glaze is piled on thick, it should be wiped off clean, since in drying the material sets so hard that it entails unnecessary labor and expense to obtain a smooth surface.

Baking the Glaze

The significance of the words "from frying pan into the fire" has never been brought home to an onlooker to a better advantage than now, as he watches the car body man-handled, sanded, washed, dried, primed, sanded and glazed and pushed onto the conveyor from the turntable, leading to another oven.

As it disappears into the portals of the oven, the glaze—by the evaporation of its mineral spirits and the oxidation of its drying-oil—hardens on the surface without the danger of flaking or peeling. This occurs in about 1½ hours, between the temperatures of 150 and 225 degrees F., depending chiefly on the nature of the material used.

Water Sanding

As the car body emerges from the oven, it passes along the rubbing deck and is allowed to cool to room temperature. The surface, being extremely rough, is water sanded to a perfectly smooth surface, free from file marks, defective metal, high-glaze spots, etc. Particular attention should be paid to sanding close to the edges of the mouldings, since the least roughness of the undercoats will clearly show through the finished car body.

As heretofore, sanding is done with a quarter sheet of No. 280 Al. oxide sandpaper, or its equivalent, dipped in water. In fact profuse quantities of water should be used to avoid possible scratching by the grit of the sandpaper, and also to speed up the operation. Rubber skivers are also used to a very great advantage in detecting the roughness of the sanded surface. Thus sanded, the car body should be thoroughly washed with running water and sponge, wiped dry with a chamois skin and allowed to traverse through an oven heated to about 175 degrees F., for about 30 minutes.

One word of caution is generally whispered by the foreman in charge, like the "neck-verse" of yore, and that is to sand either vertically or horizontally, but *never haphazardly*, nor with a rotary motion of the hand.

New Lacquer Co. Organized—Henry V. Walker Co.

Henry V. Walker Co., 17 John St., New York, has taken over the lacquer business formerly conducted by the Miner Edgar Co. The Walker Co. has acquired the Miner Edgar plants at Jersey City and Belleville, N. J. The sales and technical force formerly of the Miner Edgar Co. are now with the Henry V. Walker Co.

The new Company is organized under the laws of the state of New Jersey, and is capitalized at $500,000. The officers are:

Henry V. Walker----President
R. R. Good-----Vice President
R. F. Weaver-------Treasurer
William T. Thoburn--Secretary

Dr. Walker, president of the new company, has been engaged for many years in the nitro-cellulose industry, including lacquers and enamels.

The new company has acquired, near Newark, N. J., a large factory site with buildings and railroad facilities. It is planned to move the manufacturing operations to the new site as soon as alterations and additions to the buildings are completed.

Modern Japanning Practice

Second installment of a series of articles on baking japans, this one stressing the need of ventilation in ovens and commenting on the use of various kinds of heating agents that are employed

By T. E. Moorefield

PROPER ventilation is as necessary to produce the best results in the use of japan as it is to produce and maintain good health. Although the chemical action of baking japans, while in the process of being hardened by heat, are very complex and not well understood, it is certain that a supply of oxygen is needed to oxidize and possibly polymerize the oils, while a draft or suction is needed to carry away the volatilized thinners and other gases given off during the baking operation.

Since these gases are heavier than air the exhaust piping should be connected to the baking compartment somewhere near the floor and run as directly as possible to the outside air. It is advisable in the larger ovens to also have a vent pipe near the top of the oven to insure more complete removal of the fumes.

It is said that as a rule there should be about 20-sq. in. of vent area to each 100-cu. ft. of oven capacity. The vent pipes should be equipped with dampers which, however, should never be entirely closed because of the resulting bad effect upon the finish, as well as the possibility of explosion of the confined gases.

An opening for the admission of fresh air should be provided and, if practical, this air should be heated by passing over the heating surfaces before it is admitted to the oven, to prevent chilling of the work. The point of admission should be so chosen as to prevent the possibility of creating short-circuited draughts which will not clear the oven of fumes.

Kind of Oven Heat

There is room for discussion as to the most economical and satisfactory means of supplying heat. A great deal depends upon the available supply of gas, electricity or other heating medium. Gas manufacturers claim as good results can be obtained in an indirectly fired oven—that is, one in which the products of combustion do not come into direct contact with the coated work—as can be obtained with electricity. On the other hand, exponents of electrical heat claim many advantages.

It is said that electricity, correctly applied, offers a high heating capacity, rapid attainment of desired temperatures, even heat distribution, uniform results, a broad measure of control and an immediate response to heat action. It is known that the electrically-heated oven provides a large measure of safety in the presence of combustible gases or vapors, as there is no actual flame with which these materials can come in contact.

The direct, gas-fired oven, in which the products of combustion come in contact with the coated work, is now practically obsolete, and because of its many advan-

tages the indirect, gas-heated oven has quite displaced the open flame or directly-fired type. Concerning the results to be obtained with correctly designed gas ovens I quote from a bulletin entitled "Gas vs. Electricity for Heating Japanning Ovens," written by Homer T. Hood and published by the Michigan Gas Association, Detroit, Mich.

"This point, however, should be emphasized—that if great speed is desired it may be obtained with indirect gas equipment. It is simply a question of the amount of heat to be applied, and hence the amount of gas to be burned; this is, in turn, a question of burner design and the size of the combustion chambers. We have found in all of our experiments that the same amount of work can be turned out with gas as with electricity, if the proper gas equipment is installed.

"There can be no difference in the quality obtained in the indirect gas oven and in the electric oven, as the same kind of heat is obtained from a piece of metal whether heated by a gas flame behind the metal or heated by an electric current. The distribution of heat through the two ovens is practically the same.

"In large ovens equipped with side heaters only, there is about 60-deg. difference, in temperature between areas of greatest and least heat in either a gas or electric oven. The region of greatest heat is at the side near the top in the path of the hot air coming in from the heaters, and the region of least heat is near the center of the oven, between the work and near the floor.

"Statements that the electric oven when heating shows only five degrees difference between the areas of greatest and least heat are absolutely absurd. Practically all the heat developed with the oven must be dissipated by the circulation of hot air. Only those pieces of work which are hung directly in front of the heaters receive heat by radiation, as these pieces shield and protect those hung further back.

"Actual operation shows just as high percent of perfect work is obtained from a gas oven as an electric oven."

If the temperatures desired do not exceed about 250-deg. F., steam can sometimes be used profitably for heating. It is clean, safe, uniform and positive in action. The temperature of 250-deg. F. is lower, however, than is usually required for baking japan on fenders and other automobile parts.

Where oil, coal, coke or other similar fuels are used for heating ovens, it is better to have the heating chamber entirely separate from the oven to prevent dirt, dust and the products of combustion from coming in contact with the work. This is usually done by passing the air through a chamber where it is heated by radiation. Often the air is washed free from all dirt before entering the oven. In this case as good results are secured as with either electricity or gas.

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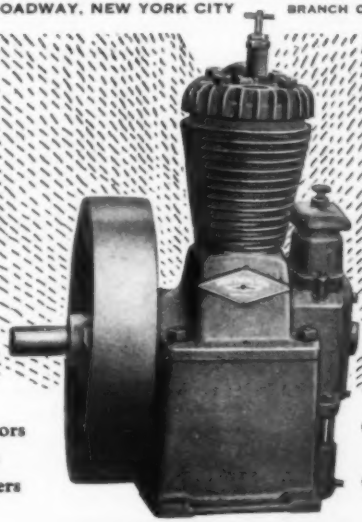

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Questions and Answers

This service department is conducted to meet the readers' need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Rustproofing Casters

We want some formula for coating our casters to prevent rusting under the paint. It must be something very easily and cheaply applied—something that will work on both the caster wheel and steel parts. It must be something that will not scratch through in handling.

Have tried lacquer, but the parts will not stand handling. Our production will be about 5,000 casters daily the first of January, so the process must be easily applied.—A. L. Co.

To rustproof your casters we have in mind either a nitrocellulose lacquer, a thin-bodied varnish, or a baked on varnish.

Probably the baked varnish finish would be the most resistant to rusting and marring, but we believe that the nitro-cellulose lacquer finish would also be very satisfactory from the non-rusting, marring, or chipping standpoint, if the proper type of nitrocellulose lacquer is used, and the casters are thoroughly free from grease or other foreign material before the lacquer is applied.

Why not get in touch with various manufacturers of finishing materials and put your problem up to them? Undoubtedly one or more of these large manufacturers can solve your problem to your entire satisfaction.

There are several methods of chemically applying other metals such as zinc, lead, tin, cadmium, and similar non-rusting metals, to the surface of steel products. These processes are all covered by patents, however, and it would be necessary for you to get in touch with people doing this kind of work in order to find out exactly how to go about doing it.—I.F.

Materials Suitable for Spraying

I am a finishing foreman of a large show case and fixture factory, and we pride ourselves with doing high grade work. We have recently installed a spray outfit and, since it is new to us, we are at a loss to know just the materials to use.

We are using the very best grade of water stains, shellac, oil paste fillers and flowing varnish. I would like to know if we can use the same materials for spraying as for brushing. If not what should we use to obtain the same high grade finish that we have been getting? The woods that we use are birch, gum, walnut, mahogany and oak.—A. L. P.

Whether the same materials that you have been applying by brushing can be satisfactorily applied by spraying depends somewhat upon the character of these individual finishing materials. Sometimes it is possible to use the same goods for brushing and spraying quite satisfactorily. At other times it is much better to buy special finishing

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materials designed purposely for spraying, rather than to attempt to use the brushing type of finishing materials.

The best way to answer this problem is for you to try the individual materials and see what results you get. If you find any faults with the finish produced by spraying, then perhaps it would be wise to ask the manufacturer of finishing materials to recommend materials to be applied by spraying that will eliminate your troubles.—I.F.

Why Does Lacquer Dry Slowly In Spots?

With reference to this inquiry by J. N. W. on page 72 of October INDUSTRIAL FINISHING, we had the same kind of an experience with a lacquer, and it was a good lacquer otherwise. We located the cause of this trouble in our material hose, and found that it was the congealing of this lacquer that caused the trouble, especially where the spray gun was not in use for several hours. Generally this had to happen when we were operating on rush work.

To overcome this trouble we found that before starting our spray gun after a recess, by *blowing back* the lacquer to the tank and cleaning the material hose, we had no further trouble. —Edward C. H. Rottmann.

Softening Hard Brushes

On page 56 of December issue, is an article by the pen of M. H. J. giving advice to softening varnish brushes by dipping the brush in varnish remover, then washing it in turpentine.

Did you ever try boiling the hardened varnish brush in hot water? You will find this simplicity much better than the other, I believe.

Some time ago one of my good first-class brushes became hard—so hard that I could hardly part the bristles by force; the brush had been used in white enamel. The hot water boiling of a few minutes melted the enamel and softened up the bristles, so there was no lousiness upon the surface of the work.

I have tried this same method on paste brushes—I mean paste filler brushes—that had laid around the shop several years, and the method limbered them up nicely.—R. F. Kleinginna.

Sealing Old Finish to Permit Lacquering

Am finishing some furniture in brushing lacquer, and have trouble in keeping the varnish from blistering and peeling up, when I spray lacquer on. Can you tell me some size or sealer that I can put on a smooth varnished surface to keep it from blistering or turning soft?—C. M. M.

It is quite a problem to put lacquer over either varnish or paint without danger of blistering or peeling; sometimes the old finish will stand the solvent action of lacquer, and again it will not.

On colored finishes, where colored lacquer enamels are to be used, it might be a good idea to apply a coat of sanding surfacer or some similar material furnished by many of the paint and varnish manufacturers for use under lacquer enamels that have strong solvent resisting properties. Certain materials have a tendency to shield the old finish

from the solvent action of the lacquer thinners.

On clear finishes, where clear lacquer is to be used, it might help some to apply a coat of pure white shellac over the old finish, before the clear lacquer is applied. Likewise, it sometimes helps to apply the first coat of lacquer quite dryly and not too heavily; let this dry thoroughly and then apply the other coats of lacquer. The first coat of lacquer will help shield the old finish from the succeeding coats of lacquer.—I.F.

Mechanical Striping and Decorating

There seems to be an increasing demand for finishing in colors, striping, etc., and in the finishing of wooden brush handles we are called upon from time to time to furnish stripes and decorative designs on some of the handles. We are not sure of the best method to be used in doing this work. Can you give us any information as to where we can secure the best mechanical devices for applying stripes in colors to varnished work?

Is this work done by means of brush or hand, or is there any attachment for spraying machines, or special flowing brushes? —H. B. Co.

I believe it can be truthfully said, as a general statement, that no satisfactory mechanical means of applying stripes and other decorations has yet been perfected.

Not all striping and decorations on all kinds of decorative work is applied by hand. Of course there are other decorations which sometimes very closely approximate hand work. Some are applied in the form of decalcomania transfers or sometimes a stencil is used, either with a brush or a spray gun for applying the color through the stencil.

Without knowing exactly the type of brush handle you refer to, as well as the kind of stripe and decoration, it is not possible for me to give you any more definite information than the above. —E. C. W.

Auto Refinishing—Rust

The way we refinish automobiles seems to create some extra labor which I would like to eliminate, if possible. We remove the old paint and baked enamel, generally using, at least in part, industrial alkali. This tends to set up rust. Then we follow with a vinegar solution to neutralize, which makes the metal rust still more.

This is followed with a thorough steam cleaning, using 100-lbs. steam combined with hot water from the boiler, which removes everything except the rust, as we never have any trouble with chemical or paraffin or wax residue. Following this steam cleaning, the car is indeed rusty; then we have a job sanding it clean with water and waterproof sandpaper, drying up as we sand, which leaves the metal bright and clean, and if kept dry it does not rust quickly thereafter.

Is there any way to avoid this rusting, in the process, thereby saving this labor of sanding off the rust?—R. E. G.

We suggest as an alternative method of cleaning your bodies that you follow the system used in many automobile body-building plants:

After the old finish has been removed with alkali solutions, in that the rust be taken off with a chemical rust remover before the hot water cleaning operation, the procedure would be to remove the old finish as you now do, but immediately following this, wash off the body thoroughly with hot water, wiping it dry with clean cloths. The heat in the metal will dry out any small traces of moisture that may be left.

Now, if there are any rust spots, remove them with a chemical rust remover, of which there are several on the market. Following this operation, again wash off the body thoroughly with hot water, and wipe and dry with clean cloths. This should give you a bright, clean surface and will eliminate the use of the acid solution, which is a strong agent in promoting rust; also, it will eliminate the labor and expense of sanding off the rust as you now do.—I.F.

Polished Silver Effect

Can you tell me of a method by which a sprayed finish can be put on resembling polished silver or polished nickel? Aluminum powder with lacquer can be used, but is there anything else that will give it more of a polished appearance?—B.P.A.

The only method we know of by which a sprayed finish resembling polished silver or polished nickel, can be applied is by the use of aluminum powder mixed with lacquer, just as you mention.

To get a higher polished appearance than you have so far been able to get, probably you will have to use a finer grade of aluminum bronze. Use so-called striping or lining bronze which is divided into very small flakes, and mix it with a good grade of clear lacquer.

After this coat has dried, then apply a coat of clear gloss lacquer over the top to give a higher luster if desired.—I.F.

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Mahoganizing Metal Ceilings of Buses

In December number of INDUSTRIAL FINISHING, H. M. & Body Wks. Inc. asks for information regarding the best method of producing a mahogany finish on the metal ceilings of bus bodies, and I wish to merely supplement what Mr. R. L. Masterson said in his splendid article in reply.

As pointed out by Mr. Masterson, it is necessary to first produce a ground-work of the proper color, then grain on top of that. The former is easy after one has decided on the shade; it is the graining that is difficult.

In addition to the methods suggested by Mr. Masterson, there are two others which I think would meet the requirements. Choice of these will depend on whether one wants a stripe mahogany, or something more elaborate, such as imitation burl, stump or crotch.

To make an imitation of one of these fancy mahoganies, first make a ground-work of the desired shade of red. Then dissolve 3-ozs. of brown sugar in one pint

of vinegar, and add sufficient dry Van Dyke brown to make a thin paint—perhaps it would be better to say a heavy stain. When the ground coat is dry, smooth it off with fine sandpaper or steel wool, and apply a coat of the Van Dyke mixture.

Keep a coarse sponge and a pail of water close at hand. Wet the sponge and squeeze it until water will no longer drip; then use the sponge to tap the freshly applied coat of Van Dyke color. The effect of the sponge on the coat of color will depend on whether the tapping is done lightly or with force. The effect can be changed by giving the sponge a slight twist just as it is lifted from the surface.

After going over the whole surface with the sponge, one can take a camel hair blender and work the figures made by the sponge into an imitation of almost any kind of mahogany. Of course, the operator must have some originality, imagination and artistic ability. Even then it will require a little practice before one learns all the possibilities of the sponge and blender and becomes skillful enough to execute the work.

An easier way to make imitation stripe of African mahogany is as follows: First apply the ground-work of red. Take Van Dyke brown ground in Japan, and darken it slightly with a small quantity of drop black ground in oil. Reduce it with turpentine to the consistency of stain. This is to be used for making the dark stripes.

To make the dark stripes, use a cup spray gun, holding the gun from 15 to 18-in. from the surface to be grained. A striking illustration of how to do this is

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shown on page 46 of December INDUSTRIAL FINISHING. In making imitation mahogany the stripes are long and the operator must be in position to move quickly and make each stripe without a break. The stripes need not be the full length of the surface.

A good plan would be for the operator to get a piece of finished stripe mahogany veneer and study the grain until he has a clear mental picture of the natural wood, and can go ahead making the stripes without referring to the veneer while at work. After the stripes are in place, hold the gun farther away from the surface and, with a quick movement, throw a mist over the whole surface to leave little specks in imitation of the pores.

By this method a skillful operator can make a wonderfully fine imitation of stripe mahogany. He can do it quickly, too, because he must move quickly to do good work. But before attempting to work on a job I would suggest that the operator practice on boards until he becomes skillful enough to do the work without danger of spoiling it.

There is one thing to be remembered—that the depth of color of the stripes depends on the quantity of drop black used with the Van Dyke brown, and the amount of turpentine used as thinner. The stripes should not be black—just a dark brown. The material should be made very thin—more like a stain than a paint.

There is one other way that is better and quicker than either of those just mentioned, provided the metal ceilings can be put on after the graining has been done, and if there is work enough to

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It is a printing machine such as is used for printing the grain on parts of furniture finished in imitation of mahogany, oak and walnut. By this method the imitation is a perfect likeness of the real mahogany, and when the surface is finished in the correct shade of color, an observer must look very closely to even suspect that it is not the genuine article. —B. Remitrom.

Starting With a Small Spraying Outfit

Many manufacturers would like to put in a spraying outfit for their work but hesitate to do so because they are laboring under the impression that it is very expensive. In a conversation with one of these hesitators—who represents the average very well—he frankly said that his ideas were based upon advertisements he had seen at different times which offered spray guns at figures well toward $100.

"I don't imagine these things are getting any cheaper," he said, "and if the gun alone costs that much, I figure that I can't get out of the job for less than $500, which is away out of proportion to any showing I could expect on the limited volume of painting I have to do."

As I have just pointed out, this man's case is typical of the small manufacturer—and unfortunately so, for labor costs him as much as it does the big fellow, and savings on labor would make a proportionately greater showing. But no small concern near him has been through the same preliminaries, and in the big plants he has visited the men in the

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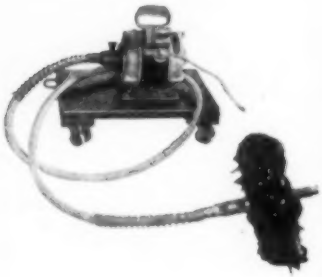

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shop, with whom he has talked, know very little about prices either coming or going. The trade papers that he reads—either in the wood or metal working fields—do not carry much information of this kind. And so he has gone on doing without more modern equipment for his work.

Where but one spray nozzle is being run from an air supply, the smallest equipment will answer the purpose and it can be purchased new, of first class quality, for less than half the supposed price.

The same manufacturer quoted above, contracted for a complete equipment later in the day—as a result of having a lacquer salesman directed to him. The salesman also sold complete mechanical equipment, both for the profit in it and to get his lacquers in use.

This man bought a 1½-h. p. motor, a 6-cu. ft. receiver, the compressor, spray gun, and all necessary piping and fittings, including the reducing valve to step down the compressed air from 100-lbs. pressure to the 45-lbs. which he would use on the gun. His contract price was $230, this for a 3-phase motor to suit his electric current.

Prices for different makes vary, and an intelligent salesman would make modification in the outfit to best adapt it to any particular concern's work. Motors for one current cost more than for another but, on the whole, the above forms a good basis for estimating.

There are ways of reducing the above price. If a plant already has compressed air and sufficient storage capacity, there is no need to buy a pump and motor. Or, perhaps there are spare motors

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SINCE 1887

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STAIN POWDERS
STAINS

LET US MATCH MATERIALS YOU ARE NOW USING AND SUBMIT SAMPLES WITHOUT OBLIGATION OR COST.

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IF THE lacquer you are using gives a smooth, tough, adherent film, you can be quite sure that it contains a sufficient amount of

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and its derivatives and that you will retain the good will and satisfaction of your customers.

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Plants:—Terre Haute, Ind., and Peoria, Ill.

from which one could be selected to run the air compressor. And it might be desirable to permanently set the outfit at some place where belt drive could be utilized. Steel drums have been used successfully in lieu of receivers, carrying only spray gun pressure in them.

It is always best to get high grade specialized equipment, but the writer's thought is that it is better to make a start with modest equipment than to never make the start. One firm used a garage compressed-air outfit for a time, until their business grew to the point where they could obtain more suitable equipment.—D. A. Hampson.

Spray Gun Useful In Machine Shop

A firm that operates a machine shop, building light and medium-weight machinery, has found that a good deal of money can be saved by using a spray gun. The company has one gun—an old style affair that was bought for a song of a nearby woodworking concern when it replaced certain apparatus with more modern equipment. Compressed air was already available in the shop and a receiver was made from a 50-gal. steel drum. These units, together with hose and some oil machine paint, comprise the outfit for finishing castings.

An exterior finish? No. The company uses the spray outfit solely for coating the under sides and the unfinished surfaces. The end sought is to save time for the machinist—not an appearance to please the buyer's eye.

Castings come to the shop from foundries that have not sand blast equipment. Everything too

0105
Fast Lac

Try it out at our expense!

Use it as a **First Coat**
Use it as a **Last Coat**
Use it for **Inside Work**

DRIES VERY FAST
DRIES TO A VELVET FINISH

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Send for five gallons—Prepaid—
If not as we claim, return it.

Jamestown Wood Finishing Co.
Jamestown, N. Y.

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"PARAMET"
(ESTER)
LACQUER GUM

Increases adhesion. Makes for greater gloss. Insures maximum toughness in nitro-cellulose lacquers.

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Satinite Colors

In liquid form, ready for the spray or brush, in over 40 popular shades, offer you the most satisfactory line for the production of colored furniture combinations so much in demand.

Beautiful, Fast, Durable and Safe with 15 years of real service to recommend them.

Write for information, or better still, let our service man show you what these materials will do.

STICKNEY COLOR CO.
Manufacturers
Satin Finish Products, Coach Colors, Varnishes and Lacquers
INDIANAPOLIS, IND.

large for tumbling barrels must be cleaned by chipping, grinding and scrubbing. This means that there is always considerable sand on all surfaces not touched by a chisel or grinding wheel.

Such sand may not be loose enough to fall off of its own weight (and so the foundry passes it as finished) but it does jar off with handling and during the vibration incident to machine tool cutting. This causes trouble for the machinist and a chance for inaccuracy every time a piece is shifted, because some loosened sand is deposited on the tables of planers and millers where the article is fastened.

The object of using a paint spray is to coat all castings as soon as they are received. Even on rush work there is very little delay as the coat of material drys over night. Next morning the castings are ready to go on the machines.

The machinists are very enthusiastic over the new method, since it gives them castings which they can work up with a minimum of effort. The castings look nice to begin with, and that is something in their favor, as the workmen don't approach them with an attitude of aversion. The castings feel more agreeable when handled, and, best of all, there is not that dry, gritty sand to shake off and cause trouble.

With a spray gun a man can coat these castings at a fraction of the cost of brush work. He does it more evenly and the gun shoots a coating into pockets and cored spaces where a brush could not reach. The film of paint applied this way, serves to hold back all the loose particles of sand.

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WOOD FINISHING PRODUCTS

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QUICK ELASTIC DURABLE
FURNITURE LACQUER

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PHILADELPHIA

"A FINISH FOR EVERY PURPOSE"

INDUSTRIAL *Overbrite* **FINISHES**

We have specialized in the manufacture of Industrial Finishes for over a quarter century. Our laboratory has developed a line of industrial lacquers that have a reputation for their durability and attractiveness.

Our Silver Lacquer is considered the best obtainable for Industrial Products.

Many manufacturers who use our prepared gold and aluminum paints say they produce exceptional results.

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Everything For The Painters Use

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Castings now go out of the shop looking more finished, too. If the buyer who receives such castings, or a machine made up of them, chances to see the under surfaces, he feels immediately that he is getting a better product—a product from a concern that really looks beneath the surface. Incidentally, the saving in the shop—not a large one at that—paid for the "equipment" in the first month.—H. A. D.

Spraying Lacquer—Blooming Troubles

After the filler has dried for at least 48 hours and has been rubbed and sanded, care being taken that there is no smear on the work, it is then ready for the spraying. The first trouble from spraying is entrapped air, and the remedy for this is quite obvious. Either the lacquer should be thinned or the air pressure should be raised so that the lacquer may be better atomized.

An extreme condition of this type will result in the lacquer going on too dry, causing so-called "spray dust" and the same remedy should be taken. Bridging over moldings, etc., also results from substantially the same condition.

Lacquers during very humid weather sometimes show a bloom. What happens when a lacquer blooms may be readily understood by remembering the process for the manufacture of artificial ice. Wherever we have a liquid which is expanding to a gas, a large amount of heat is taken up from the surrounding atmosphere, the temperature is naturally lowered, the dewpoint is reached, water is deposited on the lacquer surface, remains there after the solvents

Cut Costs

on lacquering
just about in

half-

Try out this wonderful new speed lacquer on Wood or Metal, Reed or Fibre, for quality.

number

127

OIL LACQUER

Yields twice the coverage of ordinary lacquer, hence saves you half your present lacquering costs. And it dries HARD in 4 hours.

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Will send 5 gallons at drum price

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From over the country comes enthusiastic comments about the effectiveness of Campbell's new way to prepare Paint and Varnish Remover. And particularly, because Campbell permits you to have a good remover at much less than you are paying now.

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A man frets and fumes because soap and water alone will not remove all the dye-stains from his hands.

Give him relief with PYLAM DYE REMOVER. It is harmless, and completely removes all aniline dye stains leaving the hands nice and soft. Thousands use it. $1.00 package gives three months' relief.

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Manufacturing Chemists
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Our Laboratory and Research Department have made special study of protective coatings for the use of Industrials.

We recommend several of the following products:

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PROTECTOR RED
NON-CORROSIVE COATING
CHROMOX PRIMER
REINFORCED RED LEAD
and
BUCK WHITE LEAD

We will be pleased to give full information on any or all of the above mentioned products, and request that when you are in the market for this class of goods that you communicate with us.

SAMUEL H. FRENCH & CO.
Paint and Varnish Manufacturers
Philadelphia and Camden
Established 1844 Incorporated 1920

have evaporated and again we have our familiar white appearance due to the throwing out of the cotton by the non-solvent.

Two remedies may be used to overcome this condition. First, the lacquer may be made slow-drying enough to bring the rate of evaporation to that point where the temperature is not severely affected, or in the event that water does enter into the lacquer film, it will pass off before all of the solvents evaporate.

These slow-drying solvents, unfortunately, are the most expensive ones, and it is more economical for a consumer to carry in stock a material usually called a "retarder." This may be added to the lacquer on those days when the relative humidity is high, and when this blooming trouble might be expected to appear.

Second, certain very simple chemical means may be taken to help this condition. A number of lacquer consumers are now placing shallow pans containing calcium chloride in their spray rooms. It is also oftentimes helpful to heat the air, which naturally reduces the humidity.

From a paper contributed by Walter S. Edgar of Flood & Conklin Co., at the Annual Meeting of the A. S. M. E. in New York, Dec., 1926.

"Plastic Wood"

A new product announced by the Addison-Leslie Co., Canton, Mass., is called "Plastic Wood" and, as the name implies, it can be moulded with the fingers or pressed into holes and cracks. It is like putty when it comes from the can, but when used and exposed to the air it hardens and can be sawed, planed, turned, drilled, nailed or sanded the same as wood. "Plastic Wood" will ad-

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A 99% pure product, uniform in grain and hardness. Goes further because each individual particle cuts uniformly, besides producing quicker and better work for the same reason. Our service is also an important factor, since direct importation and our own large and modernly equipped factory enable us to meet your requirements immediately. Try us.

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in enamel or lacquer enamel finishes depends entirely upon the undercoat.

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forms a perfect bond between the raw wood and the subsequent coats and will materially reduce finishing costs.

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PLC

The PLC Trade Mark on the container is a guarantee of a laboratory tested product that today is recognized as giving universal satisfaction. A request will bring a generous sample.

PITTSBURGH LACQUER AND CHEMICAL CO.
Farmers Bank Building, PITTSBURGH, PA.

here to wood, metal or tile surfaces and, when hardened, it takes any kind of finishing materials that are applied to wood.

It is only natural that when trouble is experienced the blame is placed at the door of the manufacturer, with the result that in many cases lacquers have been condemned when such complaint was not justified. An intimate knowledge of paints and varnishes and their application does not mean knowing the correct handling of lacquer.

Finishing Facts

An interesting and instructive booklet of 20 pages, 4½x7¾-in., is being distributed by the Lacquer & Chemical Corp. (makers of Alaka), 214 Fortieth St., Brooklyn, N. Y. It is called "Finishing Facts," and according to the inscription on the title page it is "A brochure in which will be found a little about Lacquers, a little about Alaka and some vital finishing facts," prepared by the company's Service Department.

Dakalite Opens New Factory

Dakalite Products Co., Inc., of Minot, No. Dakota, announces the opening of its new and enlarged factory at Burlington, a suburb of Minot. This new plant is designed to produce a ton of Dakalite daily. Many improvements in machinery and manufacturing process have been adopted—changes which will facilitate the control of the product at every step in the process and insure continued quality production.

Burlington is in a location rich in the raw material (slack lignite) from which Dakalite is made. The extensive coal deposits make cheap power and fuel available, while low land values contribute to make this location ideal in every respect.

The company expects soon to announce agencies in several Eastern and North Central points. It is intended to make Dakalite readily available to the furniture industry by placing stocks in certain convenient centers.

"AROLAC for EXCELLENCE"

AROLAC

It was our ambition for decades to have lacquers and lacquer enamels excel regular paints and varnishes not only in technical advantages and chemical supremacy, but also in dollars and cents. This is now realized in AROLAC Products. By this, we mean, first: the *covering capacity* of AROLAC; and second: the *price* which makes the use of AROLAC an obvious necessity.

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Wood lacquer, Silver and Aluminum lacquer, Bronze lacquer, Brush Brass lacquer and enamels in all colors, glossy and egg shell finishes.

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Price, $5.00 per gal
Trial ½-gal., postpaid, $3.00

Order a can of KNITTEEN today and give it a trial—you will not be without it after you use it once.

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If so, let us quote you on finishing toys, wood novelties or any products you may send out to be finished. We specialize in dipping and spraying and can quote attractive prices.

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For SILVER An economic lacquer made by pioneer lacquer makers.
For BRASS Send us your requirements.

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Advertisements under this heading 45 cents a line, minimum charge $1.35. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

SHELLAC REPRESENTATIVES

Men wanted who have established following in shellac trade. Excellent opportunity to make good connection with reputable house. Address IF-134, care INDUSTRIAL FINISHING.

FINISHING ROOM FOREMAN WANTED

By an old established sheet metal manufacturing company located in the Calumet District, manufacturing door frames, partitions, filing cases and kindred items. Must be thoroughly familiar with baked enamel finishes and graining. State age and experience, education and salary wanted. Address IF-145, care INDUSTRIAL FINISHING.

REPRESENTATIVE WANTED

An old established Varnish Manufacturer, also making a complete line of Lacquers both clear and colored, has an opening for a practical representative to call upon furniture manufacturers in Western and Southern New York and adjacent Pennsylvania towns. All applications treated in strict confidence. Give full details and address IF-144, care INDUSTRIAL FINISHING.

RESIDENT LACQUER SALESMAN

We have a real opportunity for two or three successful live wire salesmen to connect with a growing lacquer and lacquer enamel concern. Only those who are, or have been with a lacquer house and command a good volume of business need apply. Please reply in detail in first letter and give references. ATLANTIC ENAMEL & LACQUER WORKS, INC., 75 West St., New York City.

The Eastern representative, Mr. J. A. Dahlquist, Jamestown, N. Y., and the Western representative, Mr. O. D. Maal, Los Angeles, Calif., of the Industrial Sales Dept. of S. C. Johnson & Son, Racine, Wis., visited at the home office during the last two weeks of June. They reported business conditions must better than generally pictured.

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Water Soluble

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Wood Stains

DAKALITE DURABLE DYE-STAINS

There are a dozen reasons why you should use Dakalite
A trial will convince you. Get your free sample today

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OUTFIT

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Knowing that successful spray painting depends on a continuous, dependable supply of clean, dry, oil-free air, delivered at just the right pressure, HB Engineers have built this new machine to meet those demands. This new HB Silent Twin Automatic Paint Spray Outfit, with its single-unit, twin cylinder compressor is attracting the attention of Spray Painters everywhere. No breaking, slipping belts. HB gives the direct, positive action so necessary for dependable, economical operation.

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Paints • Varnishes • Enamels • Lacquers (39)

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Varnish Works
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Established 1876

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